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PUBLIC VERSION

December 16, 2025

BY ELECTRONIC DELIVERY

Mr. Bernard Logan, Clerk
State Corporation Commission
Document Control Center
Tyler Building, First Floor
1300 East Main Street
Richmond, Virginia 23219

Application of Toll Road Investors Partnership II, L.P.,
For authorization for an increase in the maximum level of tolls
Case No. PUR-2025-00191

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding the **public version** of the Application of Toll Road Investors Partnership II, L.P. For authorization for an increase in the maximum level of tolls. A confidential version is also being filed under seal under separate cover.

Please do not hesitate to call if you have any questions regarding the enclosed.

Highest regards,

/s/ Elaine S. Ryan

Elaine S. Ryan

Enclosures

cc: William H. Chambliss, Esq.
Ms. Kimberly B. Pate
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COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
Toll Road Investors Partnership II, L.P.	)	
	)	Case No. PUR-2025-00191
For authorization to increase maximum tolls	)	
pursuant to § 56-542 D of the Code of Virginia	)	

Application, Direct Testimony, and Exhibits

Public Version

Filed: December 16, 2025

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COMMONWEALTH OF VIRGINIA

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APPLICATION OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
PURSUANT TO VA. CODE § 56-542 D

Pursuant to the Virginia Highway Corporation Act of 1988 (the "VHCA" or the "Act"), § 56-535 *et seq.* of the Code of Virginia ("Va. Code"), Toll Road Investors Partnership II, L.P. ("TRIP II" or "Company"), by counsel, hereby submits an application ("Application") for State Corporation Commission ("Commission") approval to increase the maximum level of tolls for the Dulles Greenway ("Greenway"). In support of its Application, TRIP II respectfully shows the following:

I. BACKGROUND, LEGAL BASIS FOR FILING, AND OVERVIEW OF REQUEST

1. The Dulles Greenway (the "Greenway"), State Road 267, is a privately-owned, limited-access toll road on Virginia's Primary Highway System located in Loudoun County, Virginia. The Greenway has been in continuous operation since 1995 and currently serves as a critical transportation link for the Northern Virginia Metropolitan region. The Greenway extends approximately 14 miles in an east–west alignment, connecting the Town of Leesburg at its western terminus with the Dulles Toll Road (State Route 267) at its eastern terminus, thereby providing a direct, free-flowing link between Leesburg, Washington Dulles International Airport, Fairfax County, and the broader Washington, D.C. metropolitan area. For over 30

years, the Greenway has served as an essential part of the Northern Virginia transportation network, providing the public with an efficient, safe, and reliable alternative. For 2025, the Company estimates that over 18.4 million drivers will use the Greenway.[1]

2. The Greenway is unique, serving as the only privately-owned toll road in the Commonwealth whose toll rates and financing are regulated by the Commission pursuant to the VHCA. The Greenway was first envisioned in the 1980s, and extensively studied, by the Virginia Department of Transportation ("VDOT") to meet an identified public need for new investment in transportation in the burgeoning Northern Virginia area. In 1990, the Commission found there was indeed a public need for the project and approved TRIP II's predecessor's[2] plan to finance, construct, and operate the Greenway as a private toll road.[3] Important to the Commission's decision to approve the application to build the Greenway was the declaration by VDOT that it had no plans to build the roadway with public funds.[4] Further, the Commission approved the project as in the public interest, recognizing that it would be more expensive both in total cost as well as in tolls to the public over the lifetime of the project than if the road had been built as a public road.[5] The Greenway opened in 1995.[6]

3. Pursuant to Va. Code § 56-542, the Commission has "the duty and authority to approve or revise the toll rates charged by the operator" and must approve any request by the

[1] This includes approximately 15 million toll plaza and ramp transactions, plus an estimated 3.4 million un-tolled trips between Leesburg Bypass and Battlefield Parkway.
[2] TRIP II's predecessor was the Toll Road Corporation of Virginia.
[3] Opinion and Final Order, *Application of Toll Road Corporation of Virginia*, *For a certificate of authority and approval of rates of return, toll rates and ratemaking methodology pursuant to the Virginia Highway Corporation Act of 1988*, Case No. PUA-1990-00013, 1990 S.C.C. Ann. Rep. 197, 198 (July 6, 1990) (the "1990 Order").
[4] *See* 1990 Order, 1990 S.C.C. Ann. Rep. at 198.
[5] 1990 Order at 198 ("Having found that there is a public need for the project, it would be inconsistent with the public interest to deny the Application on the ground that its relative project life costs greatly exceed those of VDOT which have become totally academic with VDOT having said that it does not intend to build the project. Put succinctly, the Applicant's proposal is the only game in town.").
[6] That same year, Virginia passed the Public-Private Transportation Act of 1995 ("PPTA"), Code § 33.2-1800, *et seq.* which has governed all private toll roads built in Virginia after the Greenway.

operator to refinance existing debt.[7] The Commission may approve proposed tolls upon a finding that such tolls are (i) reasonable to the user in relation to the benefit obtained; (ii) will not materially discourage use of the roadway; and (iii) will provide the operator no more than a reasonable return, as determined by the Commission.

4. The Commission previously considered and granted increases to the maximum tolls on the Greenway in numerous cases docketed between 2003 and 2019.[8] In Case No. PUR-2019-00218, the Commission found that the record supported approval of TRIP II's proposed increases to both peak and off-peak tolls over a five-year period under the criteria set forth in § 56-542 D of the Act. Using its discretion, the Commission elected not to approve any peak tolls and limited its approval of off-peak tolls to two of the requested five annual increases due to uncertainty arising from the COVID-19 pandemic.[9]

5. TRIP II's most recent application to increase the maximum level of tolls was filed on July 11, 2023, in Case No. PUR-2023-00089 (the "2023 Rate Case" and "2023 Application").[10] The 2023 Application was the first filed under the amended Act,[11] which imposed additional requirements and standards for toll rate increases. Among other things, the 2021 Amendments require that any application to increase toll rates include a forward-looking analysis that demonstrates the proposed toll rates will meet the statutory criteria. The forward-looking analysis must be conducted using an investment grade model, and must include reasonable projections of anticipated traffic levels, considering the impact of social and

[7] Va. Code §§ 56-542 D, J.
[8] *See* Case Nos. PUE-2003-00230, PUE-2006-00081, PUE-2012-00136, PUE-2013-00139, PUE-2014-00129, PUE-2015-00137, PUE-2016-00146, PUR-2018-00003, PUR-2019-00026, and PUR-2019-00218.
[9] *Application of Toll Road Investors Partnership II, L.P. For an increase in the maximum level of tolls*, Case No. PUR-2019-00218, Final Order, 2021 S.C.C. Ann. Rep. 172, 174-75 (Apr. 26, 2021).
[10] *Application of Toll Road Investors Partnership II, L.P. For authorization for an increase in the maximum level of tolls*, Case No. PUR-2023-00089 (filed July 11, 2023).
[11] 2021 Va. Acts of Assembly chs. 349, 350 (Special Session I).

economic conditions anticipated during the time period that the proposed toll rates would be in effect. The amendments also define "materially discourage use" to mean:

> to cause a decrease in traffic of three or more percentage points based on either a change in potential toll road users or a change in traffic attributable to the toll rate charged as validated by (i) an investment-grade travel demand model that takes population growth into consideration or (ii) in the case of an investigation into current toll rates, an actual traffic study that takes population growth into consideration.[12]

Finally, the amendments direct the VDOT to review and provide comments upon the analysis to the Commission and permit only one year of toll rate increases as opposed to phased toll increases over a period of time under the prior statutory framework.

6. Following extensive proceedings on the 2023 Application, the Commission found that the proposed tolls would provide TRIP II no more than a reasonable return but found that the remaining statutory criteria were not met. Ultimately, the Commission denied any increase in the Greenway toll rates.[13]

7. In this proceeding, TRIP II seeks an increase in maximum peak and off-peak toll rates to achieve a more stable financial position, enabling it to meet financial obligations and appropriately fund operations and capital investments, allowing TRIP II to continue maintaining the Greenway as a safe, reliable, and efficient route for its millions of users. As discussed in the testimony of Company Witness Kara Lawrence, TRIP II's toll revenues under existing rates have been insufficient to cover the Company's operating costs, debt service obligations, and capital expenditures to maintain the Greenway. This has forced the Company to draw on its cash reserves to meet those needs instead of providing an opportunity to earn a return. These

[12] Va. Code § 56-542 A.
[13] *Application of Toll Road Investors Partnership II, L.P. For authorization for an increase in the maximum level of tolls*, Case No. PUR-2023-00089, Final Order at 7 (Sept. 4, 2024) (hereinafter, the "2023 Rate Case Order").

financial conditions will continue if the Company's request to increase toll rates in this proceeding is denied.

8. The Company respectfully requests approval of maximum peak and off-peak tolls to be effective upon issuance of the Commission Order approving the increases ("Primary Proposed Tolls") as described herein. The Primary Proposed Tolls, for two-axle vehicles, reflect a $0.95 increase over current peak tolls rates and a $0.35 increase over current off-peak toll rates. As supported by the testimony and exhibits of Company witnesses, the Primary Proposed Tolls are reasonable to the user in relation to the benefit obtained, will not materially discourage use of the roadway by the public as calculated utilizing the Commission's approach from the 2023 Rate Case, and will provide the operator no more than a reasonable return. Accordingly, the Primary Proposed Tolls should be approved.

9. Alternatively, should the Commission determine that a more gradual increase in peak toll rates is appropriate at this time, the Company requests the Commission approve the following secondary proposed toll rates, effective upon issuance of a final order in this proceeding ("Secondary Proposed Tolls"). The Secondary Proposed Tolls, for two-axle vehicles, reflect a $0.70 increase over current peak tolls rates and a $0.40 increase over current off-peak toll rates. The Secondary Proposed Tolls also are reasonable to the user in relation to the benefit obtained, will not materially discourage use of the roadway by the public as calculated utilizing the Commission's approach from the 2023 Rate Case, and will provide the operator no more than a reasonable return, as demonstrated by the Company's testimony and exhibits.

10. Either the Primary Proposed Tolls or Secondary Proposed Tolls would put TRIP II in a more stable financial position to meet its obligations while not providing the operator any return on investment. To be sure, neither set of tolls would allow TRIP II to generate enough

revenue to meet its operating costs, debt service, and capital expenditures. Applying the material discouragement requirement of the Act, as interpreted in the 2023 Rate Case, prevents either the Primary Proposed Tolls or Secondary Proposed Tolls from covering the Company's out-of-pocket costs; however, the increased tolls would reduce the amount the Company would need to draw on its cash reserves to cover those costs.

11. In the 2023 Rate Case Order, the Commission acknowledged the "complexities associated with toll rate proceedings under Code § 56-542" and "the unique legal structure of TRIP II and the statutory framework developed by the General Assembly attendant thereto."[14] The Commission concluded that:

> the regulatory process for implementing proposed rate changes under Code § 56-542 may benefit from the establishment of a working group designed to "reach a consensus on the basic parameters of the forward-looking analysis and the basic inputs used in the Steer Model" as applied to this statute. . . . Accordingly, TRIP II may initiate a stakeholder working group, among the participants to this proceeding desiring to be included therein, for such purpose.[15]

12. In accordance with this directive, TRIP II convened a working group attended by representatives from Commission Staff, the Office of the Attorney General's Division of Consumer Counsel, the VDOT, and the Board of Supervisors of Loudoun County. Three sessions were held between March 2025 and July 2025 during which the participants engaged in constructive dialogue concerning the network model development and calibration and the material discouragement and benefit cost analyses. The Company's Application is informed by the working group as detailed by Company Witness Steve Weller and presented in the Steer Report sponsored by Company Witness David Cuneo. Contemporaneously with this filing, the

[14] 2023 Rate Case Order at 9.
[15] 2023 Rate Case Order at 9-10.

Company is providing its workpapers in native format in an eRoom established for Staff and participants in this case in addition to certain sensitivity analyses requested by Staff.

II. GENERAL INFORMATION

13. TRIP II is a Virginia limited partnership that owns and operates the Greenway under a Certificate of Authority issued by the Commission and a Comprehensive Agreement with VDOT, pursuant to the Act.

14. The Company's name and post office address is:

Toll Road Investors Partnership II, L.P.
22375 Broderick Drive, Suite 260
Sterling, Virginia 20166

15. The names, post office addresses, and telephone numbers of the attorneys for the Company are:

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III. TOLL RATE REQUEST

16. Pursuant to Va. Code § 56-542 D, TRIP II respectfully requests approval of the Primary Proposed Tolls to be effective upon issuance of the Commission Order approving the

increases. The Primary Proposed Tolls reflect, for two-axle vehicles, a $0.95 increase over current peak tolls rates and a $0.35 increase over current off-peak toll rates:

PRIMARY PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					PRIMARY PROPOSED OFF-PEAK MAXIMUM BASE TOLL				
2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more	2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more
$6.75	$13.50	$16.90	$20.25	$20.25	$5.60	$11.20	$14.00	$16.80	$16.80

17. The Primary Proposed Tolls also reflect an increase in the differential between the Greenway's peak and off-peak tolls, referred to as the congestion management premium. Congestion pricing can manage capacity on the Greenway during peak use hours, as the Commission has acknowledged.[16] The historical congestion management premium over the period 2009 to 2021 has been approximately 20%. The premium was reduced to approximately 10% as a result of the 2019 Rate Case, wherein off-peak tolls were increased while peak tolls remained flat. The Primary Proposed Tolls seek to restore the congestion management premium to its historical level.

18. As discussed herein and as supported by the testimony and exhibits of Company witnesses, the Primary Proposed Tolls are reasonable to the user in relation to the benefit obtained, will not materially discourage use of the roadway by the public calculated using the Commission's methodology from the 2023 Rate Case, and will provide the operator no more than a reasonable return.

19. The Company recognizes that the Commission may find a more gradual increase in peak tolls rates is appropriate at this time. In that case, the Company would support approval

[16] *Application of Toll Road Investors Partnership II, L.P.*, Case No. PUE-2006-00081, 2007 S.C.C. Ann. Rept., Final Order at 6 (Sept. 11, 2007).

of its Secondary Proposed Tolls for two-axle vehicles, which reflect a $0.70 increase in peak tolls and a $0.40 increase in off-peak tolls.

SECONDARY PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					SECONDARY PROPOSED OFF-PEAK MAXIMUM BASE TOLL				
2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more	2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more
$6.50	$13.00	$16.25	$19.50	$19.50	$5.65	$11.30	$14.15	$16.95	$16.95

20. Like the Primary Proposed Tolls, the Secondary Proposed Tolls are reasonable to the user in relation to the benefit obtained, will not materially discourage use of the roadway by the public calculated using the Commission's methodology from the 2023 Rate Case, and will provide TRIP II no more than a reasonable return.

IV. ALTERNATIVE TOLL RATE REQUEST

21. The Company's Primary Proposed Tolls and Secondary Proposed Tolls are based on the statutory and constitutional interpretations applied by the Commission in the 2023 Rate Case and subsequent appeal. The Company continues to respectfully disagree with the Commission's interpretation of the statutory requirements and the constitutionality of tolls that require the use of the Company's cash reserves to cover the Company's operating costs, debt service obligations, and capital expenditures to maintain the Greenway. Nevertheless, the Company acknowledges the Commission's prior findings, and presents the Primary Proposed Tolls and Secondary Proposed Tolls as consistent with those findings for approval.

22. Consistent with its view of the statutory and constitutional requirements, however, TRIP II also requests toll rates that would allow it to earn enough revenue to at least meet its expenses ("Alternative Proposed Tolls").[17] The Alternative Proposed Tolls are reasonable to the

[17] The Alternative Proposed Tolls, together with the Primary Proposed Tolls and the Secondary Proposed Tolls, are collectively referred to herein as the "Proposed Tolls."

user in relation to the benefit obtained and will provide TRIP II no more than a reasonable return. And although the Alternative Proposed Tolls would materially discourage use of the roadway according to the Commission's methodology from the 2023 Rate Case, they would not materially discourage use of the roadway using TRIP II's methodology from that case. TRIP II thus acknowledges that for the Commission to approve the Alternative Proposed Tolls, it would have to either reconsider its interpretation of the material discouragement requirement or the constitutional minimum for toll rates under the Act.

23. The Alternative Proposed Tolls, for two-axle vehicles, reflect a $1.45 increase in peak tolls and a $0.85 increase in off-peak tolls.

ALTERNATIVE PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					**ALTERNATIVE PROPOSED OFF-PEAK MAXIMUM BASE TOLLS**				
2-Axle	**3-Axle**	**4-Axle**	**5-Axle**	**6-Axle or more**	**2-Axle**	**3-Axle**	**4-Axle**	**5-Axle**	**6-Axle or more**
$7.25	**$14.50**	**$18.15**	**$21.75**	**$21.75**	**$6.10**	**$12.20**	**$15.25**	**$18.30**	**$18.30**

24. The Alternative Proposed Tolls would comply with the constitutional minimum in the Company's view for this Application. As the Company has previously explained, it believes that the Constitution requires that the Company be afforded an opportunity to make a reasonable return over the life of TRIP II's concession to operate the Greenway. The toll revenues under the Alternative Proposed Tolls would not provide a reasonable return in 2026 (or any return at all). To make any distribution to its investors, TRIP II must meet its Commission-approved debt covenants for three straight years.[18] Nevertheless, the Alternative Proposed Tolls would be sufficient to cover the Company's operating costs, debt service obligations, and capital

[18] As the Commission is aware, those coverage ratios prohibit any distributions to investors unless (i) net toll revenue is at least 1.25 times the debt service for the previous 12 months; and (ii) net toll revenue less transfers to the Improvement Fund and Operating Reserve Fund is at least 1.15 times debt service for the past 36 months. TRIP II's tolls have not generated sufficient revenue to satisfy those covenants since 2006.

expenditures to maintain the Greenway. Thus, they would allow TRIP II at least to avoid continued operating losses now and put TRIP II on a path to obtain sufficient revenue with regular, reasonable toll increases going forward, enabling it to meet financial obligations and its debt service coverage ratios, to eventually provide the reasonable return that the Constitution requires.

V. STATUTORY REQUIREMENTS

25. As stated above, the Commission may approve proposed toll rates upon a finding that such tolls (i) will be reasonable to the user in relation to the benefit obtained; (ii) are not likely to materially discourage use of the roadway; and (iii) will provide the operator no more than a reasonable rate of return as determined by the Commission. As detailed below and as demonstrated by the Company's testimony and exhibits accompanying this Application, each of the Proposed Tolls meets the statutory criteria and one should be approved.

26. TRIP II engaged the Steer Group ("Steer") to prepare a robust investment grade traffic demand model to evaluate the impact of the proposed toll increases on Greenway traffic levels and conduct a comprehensive benefit-cost analysis to quantify the benefits and costs of using the Greenway. Company Witness David Cuneo, Senior Vice President at Steer, presents the findings and conclusions in the accompanying Steer Report.

A. The Proposed Tolls Will Not Materially Discourage Use of the Roadway by the Public.

27. Under the amended Act, "materially discourage use" is defined as causing a decrease in traffic of three or more percentage points based on either a change in potential toll road users or a change in traffic attributable to the toll rate charged as validated by an investment-grade travel demand model that takes population growth into consideration.[19] As

[19] Va. Code § 56-542 A.

demonstrated by Steer's analysis, the Primary and Secondary Proposed Tolls will not materially discourage use of the Greenway by the public as interpreted in the 2023 Rate Case, nor will any of the Proposed Tolls materially discourage use of the Greenway under TRIP II's methodology.

28. To prepare the forecast required for this assessment, Steer developed a travel demand model specific to the Greenway corridor ("Steer Model") based on the Metropolitan Washington Council of Government's ("MWCOG") regional travel demand model. As required under the Act, the Steer Model considers population growth and other socioeconomic factors and incorporates impacts to the road network from projects that are anticipated to be completed in the surrounding road network.

29. The Act does not prescribe the precise methodology for quantifying the impact to traffic resulting from a change in toll rates. To assess material discouragement consistent with the methodology applied by the Commission in the 2023 Rate Case, the Steer Model estimated the annual average daily traffic ("AADT") on the Greenway during 2026 both with and without the Proposed Tolls. The results presented in the Steer Report demonstrate that neither the Primary Proposed Tolls nor Secondary Proposed Tolls will cause a decrease in traffic on the Greenway of three or more percentage points under this approach.

30. The appropriate methodology to calculate material discouragement was an area of dispute in the 2023 Rate Case. The Company submits that its methodology presented in that case is the appropriate approach to analyze material discouragement. Under that approach, forecasted traffic levels with the proposed tolls are compared to actual traffic levels at the time of the most recent change in toll rates (2022).[20] The Company's approach appropriately accounts

[20] The Supreme Court of Virginia did not reach the issue of material discouragement in its Opinion, affirming the Commission's 2023 Rate Case Order on other grounds. *Toll Rd. Investors P'ship II, L.P. v. State Corp. Comm'n*, 918 S.E.2d 33, 41 (Va. 2025).

for inflation during the period in which no toll rate increases were implemented. The results of the material discouragement analysis applying TRIP II's methodology are also contained in the Report and confirm that none of the Proposed Tolls—Primary, Secondary, or Alternative—will cause a decrease in traffic on the Greenway of three or more percentage points under this approach.

B. The Proposed Tolls are Reasonable to the User in Relation to the Benefit Obtained.

31. Steer's benefit-cost analysis ("BCA") presented in the Report compares the quantifiable benefits to users of the Greenway relative to its costs, *i.e.*, the toll rates, utilizing the guidance and best practices recommend by the U.S. Department of Transportation ("USDOT") for developing benefit-cost analyses.[21] Quantifiable benefits evaluated include: (i) travel time savings; (ii) travel time reliability savings; (iii) vehicle operating cost savings; and (iv) accident cost savings. For purposes of this Application, Steer's analysis evaluated the benefits of both full length and partial length trips on the Greenway. The BCA results demonstrate that all of the Proposed Tolls are reasonable to the user in relation to the benefit obtained.

32. The partial length trip analysis was undertaken as a result of the Working Group discussions. This methodology involved creating a weighted average of the four quantifiable benefit categories for ten key origin-destination pairs to represent the variation of trips on the Greenway and the best non-Greenway alternative routes. The Primary Proposed Tolls have a benefit cost ratio ("BCR") of 1.47, with a total weighted average benefit of $9.18 to use the Greenway versus the non-Greenway alternative routes and a total weighted average cost of $6.26 . The Secondary Proposed Tolls have a BCR of 1.48, with a total weighted average benefit of

[21] As explained in the Report, the USDOT guidance relates to estimating the benefits of a *project* relative to its Costs. Therefore, certain adjustments and adaptions were necessary for application to the user-level BCA required by the Code.

$9.21 to use the Greenway versus the non-Greenway alternative routes and a total weighted average cost of $6.21. The Alternative Proposed Tolls have a BCR of 1.39, with a total weighted average benefit of $9.41 to use the Greenway versus the non-Greenway alternative routes and a total weighted average cost of $6.76.

33. The Greenway offers its users more than the quantifiable benefits captured in the BCA. As the Commission has recognized, the Greenway provides its users numerous qualitative benefits that are not captured in a quantitative analysis.[22] Qualitative benefits of driving on the Greenway include, but are not limited to, reliable travel times; an increased sense of safety from driving on a roadway with limited truck traffic; and additional enjoyment from driving on a well-maintained free-flow road with no traffic signals.[23]

34. Beyond direct benefits to Greenway users, TRIP II provides broader public benefits to Loudoun County, the Town of Leesburg, and the entire northern Virginia region. As discussed above, TRIP II's predecessor built the Greenway entirely with private funding that incurred debt approved by the Commission to meet the public need for a new highway in Loudoun County. As a result, each vehicle that travels on the Greenway benefits both Loudoun County and the Commonwealth by easing the burden on the toll-free public roadways while still meeting the public need. As a privately funded project, the Greenway alleviates congestion and cut-through traffic that would otherwise exist on surrounding public roads. This in turn reduces carbon emissions and improves air quality for the community at-large as well as reduces the pressure on local road maintenance and construction budgets. In addition, Va. Code § 33.1-252

[22] *See e.g., Commonwealth of Virginia, ex rel. State Corporation, Ex Parte: In the matter of investigating the toll rates of Toll Road Investors Partnership II, L.P. under § 56-542 D of the Code of Virginia*, Case No. PUE-2013-00011, Order Concluding Investigation (Sept. 4, 2015).
[23] *See Application of Toll Road Investors Partnership II, L.P. For an increase in the maximum level of tolls*, Case No. PUR-2019-00218, Report of D. Mathias Roussy, Jr., Hearing Examiner (Oct. 13, 2020).

requires free passage on the Greenway for numerous agencies, state officers, and state employees in performance of their official duties, including employees of VDOT and emergency medical services vehicles.[24]

C. The Proposed Tolls Will Provide the Company No More Than a Reasonable Rate of Return as Determined by the Commission.

35. The Proposed Tolls will provide the Company no more than a reasonable rate of return, and in fact will provide no return, as demonstrated by the testimony and exhibits of Company Witness Lawrence.

36. As shown in Confidential Exhibits KL-1 and KL-2, either of the Primary or Secondary Proposed Tolls, if approved, would fail to cover the Company's operating costs, debt service obligations, and capital expenditures to maintain the Greenway, but would minimize the need for the Company to draw on its cash reserves to cover those costs. As shown in Confidential Exhibit KL-3, the Alternative Proposed Tolls, if approved, would allow TRIP II to offer cash-neutral tolls and put TRIP II on a path to obtaining a reasonable return with regular, reasonable toll increases.

37. As explained by Company Witness Lawrence, the current and future levels of debt service—by far the largest expenditure incurred by TRIP II on an annual basis—require the Company to obtain an increase in toll rates to cover these obligations, in addition to its operating costs, capital costs, and inflation. TRIP II has not generated sufficient net revenues to cover its debt service payments since February 2022. Specifically, TRIP II has been required to utilize

[24] This includes, but is not limited to, members of the Commonwealth Transportation Board, officers and employees of the Department of State Police, employees of the Department of Motor Vehicles, regional jail offices, animal wardens, the Director and officers of the Department of Game and Inland Fisheries, persons operating fire-fighting equipment and ambulances, operators of school buses being used to transport pupils to and from school, employees of any transportation facility created pursuant to the Act, and operators of commuter buses having a capacity of 20 or more passengers and public transit buses.

$17.6 million, $11.7 million, $8.9 million, and $7.8 million respectively of the existing cash reserves to meet the February 2022, 2023, 2024, and 2025 bond repayments. The current expectation is that TRIP II will continue to draw on cash reserves to meet the February 2026 bond repayments.

38. The financial impact of the Proposed Tolls is dependent on numerous external factors that will influence actual traffic volumes on the Greenway, including competition from toll-free public roads and alternative modes of transportation, population and income growth, toll prices on the Dulles Toll Road, and weather events. To illustrate the potential financial impacts of the increased tolls, the Company has prepared projected cashflows under several plausible scenarios for future traffic during the 2026 rate year (the twelve months beginning January 1, 2026).

39. As demonstrated in each traffic forecast scenario, the Proposed Tolls are not expected to generate any return on equity, falling far short of the 14.00% per annum[25] allowed rate of return previously authorized by the Commission. TRIP II will not meet its debt covenants and is expected to generate insufficient revenue to be in a cashflow neutral position during 2026 with approval of the Primary and Secondary Proposed Tolls. With approval of the Alternative Proposed Tolls, TRIP II would at least generate sufficient revenue to be in a cashflow neutral position during 2026.

40. The Reinvested Earnings Account ("REA"), established and approved by the Commission in Case No. PUA-1990-00013, quantifies TRIP II's authorized but unearned return. Approximately $144 million of equity capital has been contributed to fund the construction and improvement of the roadway since 1993 but only $102 million has been disbursed since that

[25] Also falling short of the 17.5% weighted allowed return over the life of the concession. *See* Company Witness Lawrence's Exhibit KL-5.

time. This means that TRIP II has not yet realized the approximately $16 billion in returns (as of December 31, 2025) it has been authorized to earn on the Greenway as shown in Company Witness Lawrence's Exhibit KL-4. While this full, unearned return is unlikely ever to be recovered, the REA nevertheless allows the Commission to keep track of and consider the prior unearned returns when evaluating whether the Company's requested toll increases will provide no more than a reasonable return.

41. The evidence clearly demonstrates that each of the Proposed Tolls will provide the Company no more than a reasonable rate of return.

VI. CONSTITUTIONAL REQUIREMENTS

42. The government may not take private property for public use "without just compensation."[26] An unconstitutional taking can arise from ratemakings for public utilities, including toll roads.[27] Given the "partly public, partly private status" of utilities, a commission may set reasonable rates to charge customers.[28] But a rate may not be "so unjust as to be confiscatory."[29]

43. To determine whether a rate is confiscatory, courts consider whether the rate provides "enough revenue not only for operating expenses but also for the capital costs of the business," which "include service on the debt and dividends on the stock."[30] A rate must be "sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital."[31] And it must offer "a fair rate of return" to the utility's private investors.[32] To be sure, the Commission has substantial leeway in "balancing the interests of the

[26] U.S. Const. amend. V; Va. Const. Art. I, § 11.
[27] *See Covington & Lexington Turnpike Rd. Co. v. Sandford*, 164 U.S. 578 (1896).
[28] *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989).
[29] *Id.*
[30] *Fed. Power Comm'n v. Hope Nat. Gas Co*., 320 U.S. 591, 603 (1944).
[31] *Id.*; *see Commonwealth v. Va. Elec. & Power Co.*, 211 Va. 758, 769 (1971) (similar).
[32] *Duquesne*, 488 U.S. at 310.

utility and the public."[33] But ultimately, "[r]ates which are not sufficient to yield a reasonable return on the value of the property used at the time it is being used to render the service are unjust, unreasonable and confiscatory."[34]

44. These constitutional principles apply notwithstanding any contrary statutory enactment. "No enacted 'law' can authorize the government to damage or take private property" absent just compensation in violation of the Takings Clause.[35] Thus, while toll rates "may be controlled by legislative authority," a statute that prevents an operator "from keeping its road in proper repair, and from earning any dividends whatever for stockholders, is [] obnoxious to the constitution of the United States."[36]

45. The current tolls are "so unjust as to be confiscatory."[37] As discussed above and in the testimony, they do not allow TRIP II to earn enough revenue to even cover its expenses, much less provide any return. They "jeopardize [TRIP II's] financial integrity" by "leaving [TRIP II] insufficient operating capital."[38] And they do not put TRIP II on a path to make a reasonable return over the life of the Greenway.[39] TRIP II respectfully submits that, to thus avoid a further taking of TRIP II's property, the Commission must authorize a toll increase in this proceeding.

46. The Company acknowledges that the Commission adopted a different view of the constitutionality of the current tolls, and it has offered the Primary Proposed Tolls and Secondary Proposed Tolls as consistent with the Commission's view. As noted, however, TRIP II urges the Commission to revisit that view. TRIP II submits that to meet the constitutional standard and to

[33] *Duquesne*, 488 U.S. at 316.
[34] *Bluefield Waterworks & Imp. Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679, 690 (1923).
[35] *McKeithen Tr. of Craig E. Caldwell Tr. U/A Dated Dec. 28, 2006 v. City of Richmond*, 302 Va. 422, 439 (2023).
[36] *Covington*, 164 U.S. at 594-95.
[37] *Duquesne*, 488 U.S. at 307.
[38] *Duquesne*, 488 U.S. at 312.
[39] *See Bluefield Waterworks*, 262 U.S. at 690.

put the Company on a path to obtaining a reasonable return, the approved tolls in 2026 must, at a minimum, generate sufficient revenue to avoid continued operating losses, so that TRIP II can earn a return on investment with regular, reasonable toll increases going forward. The Alternative Proposed Tolls meet that standard.

VII. DIRECT TESTIMONY SUPPORTING OBJECTIVES SOUGHT

47. In support of the Company's Application, the Company presents the pre-filed direct testimony of Kara Lawrence, Steve Weller, and David Cuneo. In summary, these witnesses address and support the Application as follows:

- *Kara Lawrence***,** Chief Executive Officer of TRIP II. Company Witness Lawrence provides a brief history of the Greenway, offers background on the financing of the Greenway, how the level of debt service impacts toll rates, and discusses current toll pricing on the Greenway. Company Witness Lawrence also provides an overview of the Company's proposed tolls and explains how such tolls would provide the Company with no more than a reasonable return.

- *Steve Weller*, Lead, Forecasting and Analytics, North America, Atlas Arteria. Company Witness Weller addresses Greenway traffic and discusses improvements to alternative roads and investment in the Greenway. In addition, Mr. Weller supports the tolls proposed in the Company's Application, including the appropriate differential between peak and off-peak tolls.

- *David Cuneo,* Senior Vice President*,* Steer, introduces the investment grade travel demand model and supports the results of the material discouragement and benefit-cost analysis required under the Code, all as presented in the Steer Report.

VIII. ADDITIONAL PROTECTIVE TREATMENT OF CONFIDENTIAL INFORMATION

48. The Company's Application contains, at points so designated herein, confidential information, and the non-public version of this filing is being made under seal. Because portions of the Company's Application contain such confidential information, in compliance with Rule 170 of the Procedural Rules, 5 VAC 5-20-170, this filing is accompanied by a separate Motion for Entry of a Protective Order and Additional Protective Treatment, including a form of

Proposed Protective Order, filed by the Company under separate cover but contemporaneously with this Application.

IX. CONCLUSION

WHEREFORE, TRIP II respectfully requests the Commission to (1) docket this Application; (2) grant the accompanying Motion for Entry of a Protective Order; (3) approve the Primary, Secondary, or Alternative Proposed Tolls as set forth herein; and (4) grant the Company such further relief as may be necessary or appropriate.

Respectfully submitted,

TOLL ROAD INVESTORS PARTNERSHIP II, L.P.

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December 16, 2025

DIRECT TESTIMONY OF
KARA LAWRENCE
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
CASE NO. PUR-2025-00191

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Kara Lawrence

Title: Chief Executive Officer, TRIP II

Summary:

Company Witness Kara Lawrence introduces the Company's request to increase toll rates on the Greenway and the key factors supporting this request.

Ms. Lawrence first provides a brief history of the Greenway, including the financings that have been undertaken to construct, improve, and operate the roadway. Company Witness Lawrence also discusses the factors that have contributed to the financial performance of TRIP II, and the financial impact the proposed tolls will have on the Company. The Company's peak toll rates were last increased in 2019, and off-peak toll rates were last increased in 2022. Company Witness Lawrence explains how the lack of toll increases has contributed to the current financial performance of the Greenway. TRIP II has not generated sufficient net revenues to cover its debt service payments since February 2022 and has not been able to make distributions to its limited partners to repay them for the equity invested to construct and improve the road or provide any return on that investment.

In this proceeding, the Company is requesting the Commission approve proposed toll rates which reflect for two-axle vehicles a $0.95 increase over current peak tolls rates and a $0.35 increase over current off-peak toll rates (the "Primary Proposed Tolls"). Should the Commission determine that a more gradual increase in peak toll rates is appropriate at this time, in the alternative, the Company requests the Commission approve proposed toll rates which reflect for two-axle vehicles a $0.70 increase over current peak tolls rates and a $0.40 increase over current off-peak toll rates (the "Secondary Proposed Tolls"). Lastly, consistent with the Company's view of the statutory and constitutional requirements as addressed in the Application, the Company presents its alternative toll rate request (the "Alternative Proposed Tolls") which reflect for two-axle vehicles a $1.45 increase over current peak tolls rates and a $0.85 increase over current off-peak toll rates. The Primary, Secondary, and Alternative Proposed Tolls are collectively referred to as the "Proposed Tolls."

As required by the Virginia Highway Corporation Act, the Proposed Tolls are reasonable to the user in relation to the benefit obtained and will provide the operator no more than a reasonable return. In addition, the Primary and Secondary Proposed Tolls will not materially discourage use of the roadway by the public applying the methodology from the 2023 Rate Case, and none of the Proposed Tolls will materially discourage use of the roadway utilizing TRIP II's methodology.

Company Witness Lawrence presents TRIP II's projected cashflows for 2026, the calculation of the current Reinvested Earnings Account balance, and the Company's internal rate of return analysis. The Primary and Secondary Proposed Tolls will not generate sufficient revenue to put TRIP II in a cashflow neutral or positive position, but both meet the statutory criteria as interpreted by the Commission and are necessary to meet debt service requirements and operating expenses. The Alternative Proposed Tolls would generate sufficient revenue to put TRIP II in a cashflow neutral position for 2026. Any of the Proposed Tolls would put TRIP II on a better path to cover costs, meet debt service coverage ratios in the future, and eventually provide TRIP II with the opportunity to earn a reasonable return on invested capital the Constitution requires.

DIRECT TESTIMONY
OF
KARA LAWRENCE
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2025-00191

Q. Please state your name, business address, and position of employment with Toll Road Investors Partnership II, L.P. ("TRIP II," or "Company").

A. My name is Kara Lawrence. I am the Chief Executive Officer ("CEO") of TRIP II. My business address is 22375 Broderick Drive #260, Sterling, Virginia 20166.

Q. Please describe your role as CEO and your background.

A. As CEO, I have responsibility for the entire operations of the Dulles Greenway, which includes leading the TRIP II business and management team and overseeing the relationship between the Dulles Greenway ("Greenway") and the Commonwealth of Virginia. I report directly to the TRIP II Board of Directors and am responsible for all matters necessary to comply with its duty to operate TRIP II in compliance with its regulatory, contractual, insurance and other obligations, including the terms of the Comprehensive Agreement with the Virginia Department of Transportation ("VDOT") and the requirements of the bond documents associated with financing the Greenway. I also manage TRIP II's external relations with VDOT, Loudoun County, the Metropolitan Washington Airports Authority ("MWAA"), the Town of Leesburg, and other regional stakeholders.

My background is in finance, with global experience in start-up, mid-market, and multi-billion-dollar companies. Prior to joining TRIP II in October of 2025, I was the Chief Financial Officer ("CFO") and Interim CEO of Skyway Concession Company LLC ("Skyway"), an elevated 7.8-mile toll road built in the 1950s, supported by 60

bridge structures, that connects the Dan Ryan Expressway in Chicago to the Indiana Toll Road.

Before Skyway, I was the CFO of FoodChain ID Group Inc. ("FoodChain") where I oversaw seven acquisitions in three years, transformed the finance organization, and participated in the successful sale of the company. Prior to FoodChain, I was the CFO at Elevance Renewable Sciences, Inc. ("Elevance"), a renewable specialty chemical company with leading edge technology. I joined Elevance while the company was being formed and was the key architect in developing and implementing the financial systems and processes, and the financial organization. I also held several leadership positions at British Petroleum, Amoco Corporation, and Innovene Inc., relating to business management, strategy, mergers and acquisitions, financial planning and analysis, treasury, corporate finance, and marketing. I am a Certified Public Accountant with a bachelor's degree in accounting and finance from the University of Michigan, and a Master of Business Administration from the University of Chicago Booth School of Business.

INTRODUCTION

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to introduce the Company's request to increase toll rates on the Greenway and the key factors supporting this request. In support of this request, I will provide a brief history of the Greenway, including the financings that have been undertaken to construct, improve, and operate the roadway. In addition, I discuss the factors that have contributed to the financial performance of TRIP II, and the financial impact the Proposed Tolls will have on TRIP II. Lastly, I will introduce the other Company witnesses supporting the request.

Q. During the course of your testimony, will you introduce any exhibits?

A. Yes, my testimony includes the following Exhibits:

- Confidential Exhibit KL-1: Projected Cashflows – Primary Proposed Tolls
- Confidential Exhibit KL-2: Projected Cashflows – Secondary Proposed Tolls
- Confidential Exhibit KL-3: Projected Cashflows – Alternative Proposed Tolls
- Exhibit KL-4: Dulles Greenway Reinvested Earnings Account Calculation
- Exhibit KL-5: Internal Rate of Return Analysis

Q. What is the basis of the Company's request in this proceeding?

A. TRIP II is requesting an increase in maximum peak and off-peak toll rates in order to meet its financial obligations, pay debt service, and fund its operations and capital investments to maintain the Greenway as a safe, reliable, and efficient route for its millions of users. The Greenway is unique, serving as the only privately-owned toll road in the Commonwealth whose toll rates and financing are regulated by the Commission pursuant to Virginia Highway Corporation Act of 1988 (the "VHCA" or the "Act"), § 56-535 *et seq.* of the Code of Virginia ("Va. Code").

Peak toll rates were last increased in 2019, and off-peak tolls rates were last increased in 2022. As I will further address, the inability to regularly increase toll rates has denied TRIP II the opportunity to earn a reasonable return on its investment and threatens TRIP II's financial integrity. For example, TRIP II's toll revenues under existing rates have been insufficient to satisfy the Company's obligations related to its debt service, forcing the Company to draw on its cash reserves to cover its required debt service payments. These conditions will continue if the Company's request to increase toll rates in this proceeding is denied.

The Company requests approval of maximum peak and off-peak tolls to be effective upon issuance of the Commission Order approving the increases (the "Primary Proposed Tolls") as described herein. The Primary Proposed Tolls reflect, for two-

axle vehicles, a $0.95 increase over current peak tolls rates and a $0.35 increase over current off-peak toll rates.

Alternatively, should the Commission determine that a more gradual increase in peak toll rates is appropriate at this time, the Company requests the Commission approve the following alternative proposed toll rates, effective upon issuance of a final order in this proceeding ("Secondary Proposed Tolls"). The Secondary Proposed Tolls, for two-axle vehicles, reflect a $0.70 increase over current peak tolls rates and a $0.40 increase over current off-peak toll rates.

Lastly, consistent with the Company's view of the statutory and constitutional requirements as addressed in the Application, the Company presents alternative toll rates (the "Alternative Proposed Tolls") which reflect for two-axle vehicles a $1.45 increase over current peak tolls rates and a $0.85 increase over current off-peak toll rates. The Primary, Secondary, and Alternative Proposed Tolls are collectively referred to as the "Proposed Tolls."

As the testimony and supporting exhibits demonstrate, the Proposed Tolls are reasonable to the user in relation to the benefit obtained and will provide the operator no more than a reasonable return as required by the Act. In addition, the Primary and Secondary Proposed Tolls will not materially discourage use of the roadway by the public applying the methodology from the 2023 Rate Case, and none of the Proposed Tolls will materially discourage use of the roadway utilizing TRIP II's methodology.

I. GREENWAY HISTORY AND OPERATIONS

Q. Please provide an overview of the Greenway.

A. The Greenway, SR 267, is a limited-access toll road on Virginia's Primary Highway System located in Loudoun County, Virginia. The Greenway facility has been in

continuous operation since 1995 and currently serves as a critical transportation link for the Northern Virginia Metropolitan region. The Greenway extends approximately 14 miles in an east–west alignment, connecting the Town of Leesburg at its western terminus with the Dulles Toll Road ("DTR") at its eastern terminus, thereby providing a direct, free-flowing link between Leesburg, Washington Dulles International Airport, Fairfax County, and the broader Washington, D.C. metropolitan area. When combined with the DTR, the Greenway provides the only limited access route through the rapidly growing Dulles corridor. The Greenway has seven toll plazas, including a main line toll plaza (with 18 lanes) and six tolled ramps. Electronic Toll Collection ("ETC") is available at each toll plaza, with 10 dedicated ETC lanes on the Main Line Toll Plaza. It also includes a minimum 40-foot median designed at the time to accommodate a mass transit development, now complete and known as the Silver Line, an extension of the Washington Metrorail system.

The Greenway is unique within Virginia. First envisioned in the 1980s and extensively studied by VDOT to meet an identified public need for new investment in transportation in the burgeoning Northern Virginia area, it became the first—and ultimately the only—public private partnership project approved and constructed and operated under the regime of the VHCA, a statutory scheme that applies utility-style regulation on private toll roads. Under the VHCA, the Greenway is subject to a Comprehensive Agreement between TRIP II and VDOT, which governs the Greenway's construction, maintenance, and asset management and planning. The Greenway is the only toll road on the Commonwealth financed entirely with private funds.

Q. What are the benefits that the Greenway provides?

A. The Commission has recognized that a road through this corridor likely would not have been built had TRIP II not taken on the development and construction of the Greenway.[1] For over 30 years, the Greenway has been an integral part of the transportation network in eastern Loudoun County, helping facilitate the five-fold growth in Loudoun County's population from around 86,000 in 1990 to an estimated 455,000 in 2025,[2] and has seen more than 500 million trips taken on it since it opened in 1995. It provides a high quality, efficient, reliable, and safe route for all drivers. As a primary artery between Leesburg (and points west) and the DTR (including Reston, Tysons Corner and other points east), the Greenway provides users with multiple benefits, including quicker and more reliable travel times at higher average speeds, lower vehicle operating costs, and a safer driving environment with substantially lower accident rates. In addition, the Greenway offers drivers the peace of mind from driving on a well-maintained and safe roadway.

A complement to the public road network, the Greenway relieves the financial burden of local and state agencies charged with providing transportation throughout the region and simultaneously enhances the quality of life for local residents and commuters by alleviating congestion and cut-through traffic that would otherwise exist on surrounding public roads. This in turn reduces carbon emissions and improves air quality for those neighborhoods as well as reduces the pressure on local road maintenance and construction budgets, which in turn reduces the burden to taxpayers.

[1] *See*, *e.g. Application of Toll Road Corp. of Va. For a certificate of authority and approval of rates of return, toll rates and ratemaking methodology pursuant to the Va. Highway Corporation Act of 1988*, Case No. PUA900013, Opinion and Final Order at 6 (July 6, 1990).
[2] https://www.loudoun.gov/1913/Demographic-Estimates-Forecasts.

Q. Could you please describe a few of the projects that the Greenway has invested in that benefit the local community?

A. The Leesburg Bypass Improvement Project is one such project. The purpose of this project was to improve roadway safety and reduce congestion on State Route 7/U.S. Route 15 Bypass at its interchange with South King Street. Specifically, TRIP II joined a tri-party agreement with Loudoun County and the Town of Leesburg to initiate a project that was designed to improve traffic flow on Route 15 and as a result relieve congestion at the west end of the Greenway. TRIP II managed the construction and design of the approximately $4.4 million project on behalf of Loudoun County. TRIP II financed 50% of the overall project costs. Completed on time and on budget in Spring of 2022, the Leesburg Bypass project helps alleviate congestion in the evenings when exiting the Greenway and provides travelers a safer merge on to the Leesburg Bypass.[3]

Another example is the Dulles Greenway Dulles Toll Road Eastbound Widening, which includes the addition of a lane that extends from the Greenway's mainline plaza along the DTR to Centreville Road. This project, which was substantially completed in January 2021, eases morning peak congestion and improves the safety of the merge between Greenway customers and traffic entering the DTR from Route 28 and Dulles International Airport. TRIP II invested approximately $17.2 million for this project.

[3] Travelers in Leesburg are able to use the section of the Greenway between Leesburg Bypass and Battlefield Parkway toll-free.

II. GREENWAY FINANCING

Q. By way of background, what oversight does the Commission have over the Greenway's financing?

A. Under the VHCA, the Commission must approve any refinancing of the Greenway's existing debt. The Commission may approve the request if TRIP II demonstrates: "(i) that it has the financial capability to pay off the debt incurred in the refinancing over the term of the bond, loan, or similar instrument; (ii) that the term of the bond, loan, or similar instrument does not extend beyond the expiration of the operator's current certificate of authority; (iii) that such refinancing will not increase toll rates; and (iv) that such refinancing is in the public interest." The Greenway's debt was last refinanced in 2005 following Commission approval in Case No. PUR-2001-00017 in accordance with the VHCA.

Q. Please provide background on the financing of the Greenway.

A. At the time the Greenway opened to traffic in 1995, the total cost to acquire the right-of-way, construct the road, install surfacing and safety features, and install toll collection equipment was approximately $315 million. This did not include future capital expenditures that TRIP II was required to incur for other planned improvements under the Comprehensive Agreement. Additional operating, funding, and development costs were also incurred, resulting in a total of $40 million in equity from the original Limited Partners and approximately $311 million in debt invested into TRIP II initially. The debt funding included approximately $254 million in fixed-rate First Mortgage Notes and a $57 million Construction Loan with a relatively expensive weighted average annual interest rate of approximately 9.80%.

Q. Why has TRIP II's debt increased since this initial financing?

A. Several factors have contributed to the increased debt, including: weaker than anticipated traffic on the road when it opened in 1995, which in turn resulted in insufficient cash flows for the business to meet its debt obligations and created a near default situation almost immediately after the opening of the road; sustained traffic underperformance relative to historic traffic forecasts; the resulting financial performance and debt refinancings;[4] and the type of debt held by TRIP II.

The near default situation shortly after the road opened to traffic was remedied with the restructuring of TRIP II's debt in 1999, which was approved by the Commission in Case No. PUF-1998-00025. This restructuring led to an increase in the total level of debt outstanding between December 31, 1998, and December 31, 1999, of approximately $149 million.

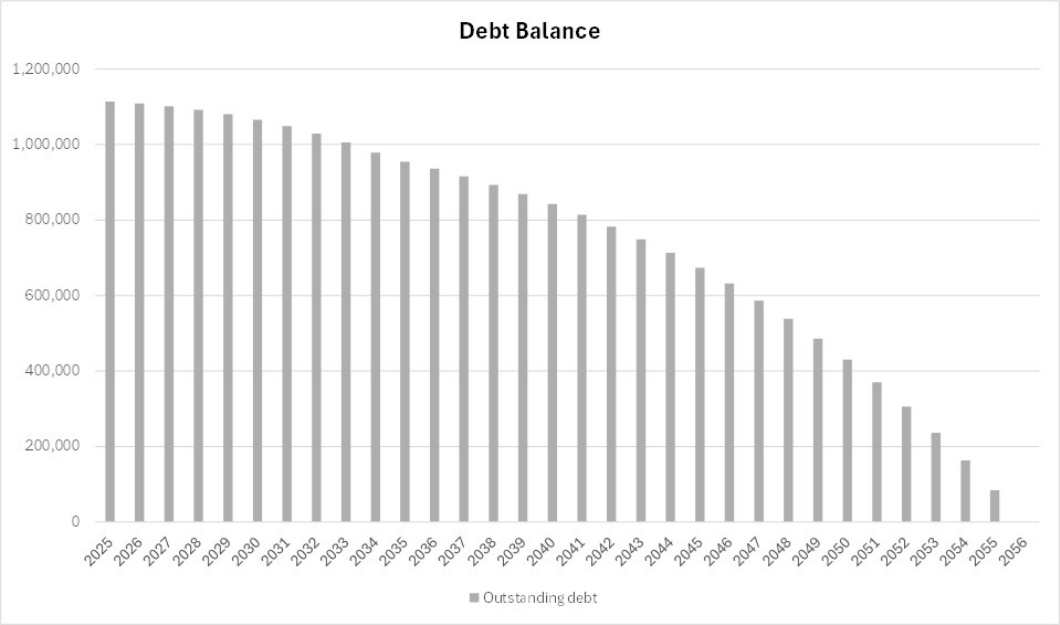
In March 2005, due in part to significant commercial development around Dulles Airport and in Loudoun County, growing residential communities along the Greenway, and Greenway traffic continuing to perform below expectations, TRIP II restructured its debt again with support from VDOT and Commission approval in Case No. PUF-2001-00017. Accompanying this debt restructuring was a 20-year extension of the project concession to 2056. This refinancing led to an increase in the total level of debt outstanding between December 31, 2004, and December 31, 2005, of approximately $355 million, bringing the total debt level at that time to $882 million. The debt profile for that debt remains the same now as it was then.

[4] Among other factors, the debt refinancings increased the debt balance due to the incurrence of issuance costs, insurance costs, and the funding of reserve accounts.

Q. What is the current amount of debt on TRIP II's balance sheet?

A. As of December 2025, TRIP II will have a debt balance of just over $1.1 billion on its balance sheet, as reflected in the debt profile chart below.

Figure 1



Q. How did the debt balance on the Greenway increase from $882 million in 2005 to just over $1.1 billion as of December 2025?

A. The majority of TRIP II's debt consists of zero-coupon bonds. Zero-coupon bonds are a type of "accreting bond," meaning they do not pay interest to the bondholders in cash during the life of the bonds. Instead, they are sold to the bondholders at a discount to their face value, and the interest accrues on top of the principal over the life of the bond. The accrued interest is payable upon the bond's maturity along with the principal. As a result, the amount of outstanding debt, consisting of the principal and continually accruing interest, continues to increase over time until the bonds reach maturity. The maturities of the bonds were spread over the life of the concession to provide a more level debt service profile.

The debt was deliberately structured in this way to postpone the payment of interest and match anticipated increases in revenue over time from traffic and toll growth. This was not an uncommon way to structure long-term toll road debt as it allows for lower toll increases in the early years of a concession. For example, the Dulles Toll Road has three tranches of zero-coupon bonds totaling about $772 million of its approximately $3.5 billion of debt.

Q. Has TRIP II issued any new debt since the 2005 refinancing?

A. No, TRIP II has not issued any new debt since the 2005 refinancing and no other debt associated with the Greenway in any way has been issued or incurred. The growth in the balance of the debt on the Greenway is simply the accumulation of interest over time associated with the zero-coupon bonds as discussed above, which was known since the time the Commission approved the 2005 refinancing.

Q. How does the level of debt service impact toll rates?

A. Unlike traditional regulated utilities whose rates are established by the Commission based on the total cost of providing service including debt service obligations, toll prices for the Greenway are set using a methodology that does not directly consider debt service or other operating or capital costs. Of these costs, debt service is by far the largest expenditure incurred by TRIP II on an annual basis.

TRIP II's bond indentures include provisions that require TRIP II to use its best efforts to seek and obtain Commission authorization to allow toll rates that will generate sufficient revenues for the business to meet its debt service coverage ratios. The increasing debt service costs over time, along with corresponding debt service coverage ratio requirements, require steady increases in toll rates in order for TRIP II

to meet its debt obligations and provide an opportunity to earn a return on the significant investments made in the Greenway.

As a result, while tolls are primarily set based on the statutory criteria, the Commission and Commission Staff have previously recognized that the Company's ability to meet its debt obligations is a relevant consideration when evaluating potential changes to the Company's tolls. For example, in Case No. PUE-2013-00011, the Commission noted in its Order Concluding Investigation that whether the tolls would provide "sufficient revenues for the Company to meet its debt obligations and could jeopardize TRIP II's overall financial integrity" was relevant in evaluating toll rate proposals.[5] The Commission further acknowledged the Staff's position in that proceeding that "constitutional issues arise if tolls are lowered . . . in a manner that prohibits the Company from recovering its prudently incurred operating costs and debt obligations."[6]

Q. Please explain the primary obligations that TRIP II has related to the outstanding debt on the roadway to be able to make distributions.

A. As part of its ongoing financial obligations with regard to the remaining 1999 and 2005 series bonds, TRIP II is required to meet the following two covenant tests *at the same time* before being able to make distributions to equity holders.

1) The Minimum Coverage Ratio ("MCR") requires that Net Toll Revenue (essentially toll revenue less operating costs) shall equal at least 1.25 times the Debt Service on all Senior Bonds outstanding for each fiscal year. Failure to

[5] *Commonwealth of Virginia Ex. Rel State Corporation Commission, Ex Parte: In the matter of investigating the toll rates of Toll Road Investors Partnership II, L.P., under § 56-542 D of the Code of Virginia*, Order Concluding Investigation at 9 n.24 (Sept. 4, 2015).
[6] *Id.*

meet this covenant locks up distributable cash until the MCR has been satisfied for a consecutive period of 12 months.

2) The Additional Coverage Ratio ("ACR") requires that Net Toll Revenue less transfers to the Improvement Fund and Operating Reserve Fund shall equal at least 1.15 times Debt Service. Failure to meet this covenant locks up distributable cash for a period of 36 months.

Coverage ratios like these provide a forward-looking assessment of a project's ability to pay its debts, and are key indicators of risk for bondholders, lenders, and rating agencies. They help determine if a company has enough earnings to make its required interest payments and principal repayment. Since 2006, the Greenway has been in debt lock-up, meaning the business has not been able to make distributions to its limited partners to repay them for the equity invested to construct and improve the road, let alone to provide any return on that investment. The current expectation is that both the MCR and ACR tests will not be satisfied in 2025 or 2026. The following charts show the historical MCR and ACR results, respectively.

Figure 2: Dulles Greenway Minimum Coverage Ratio Results

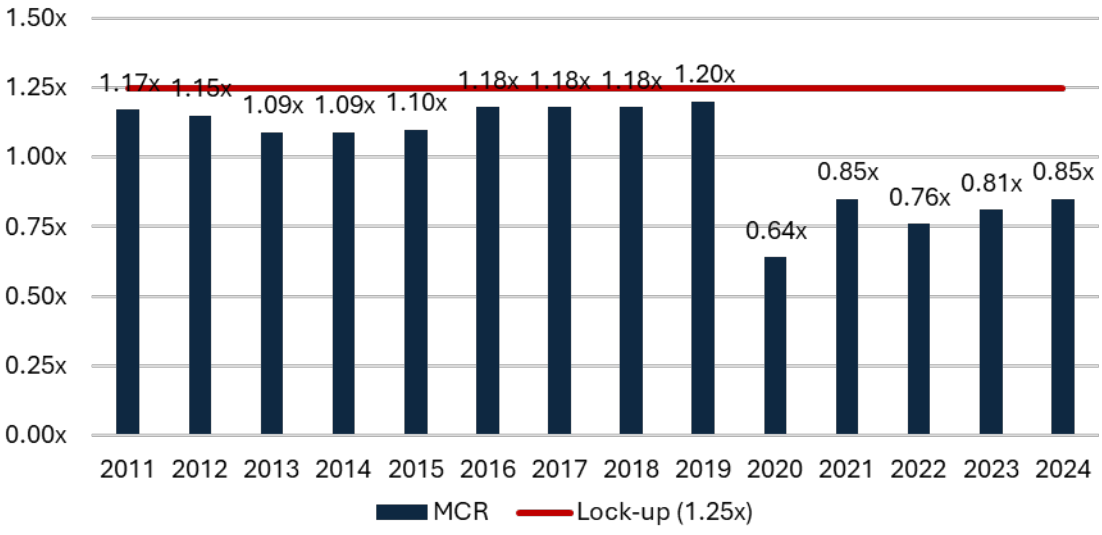
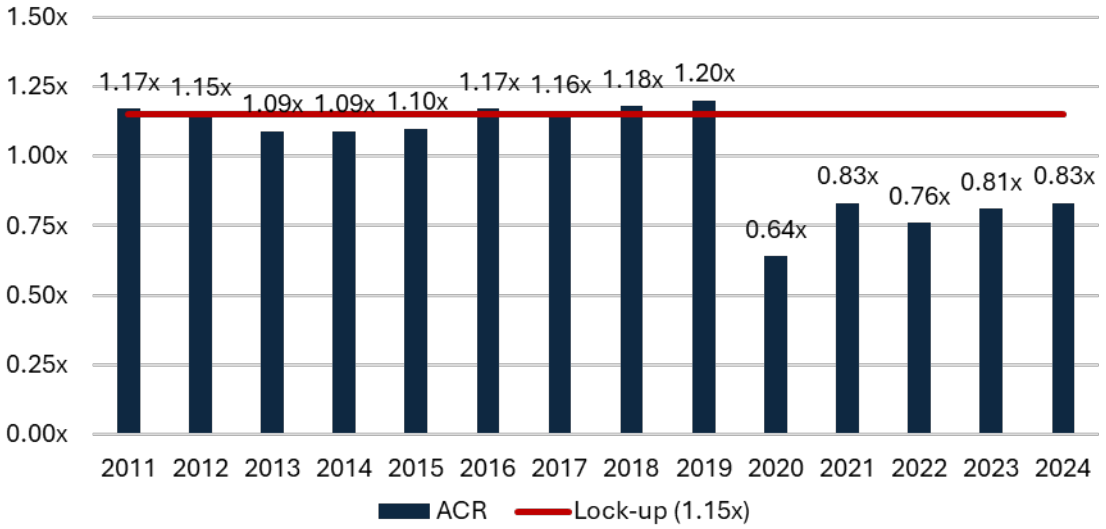


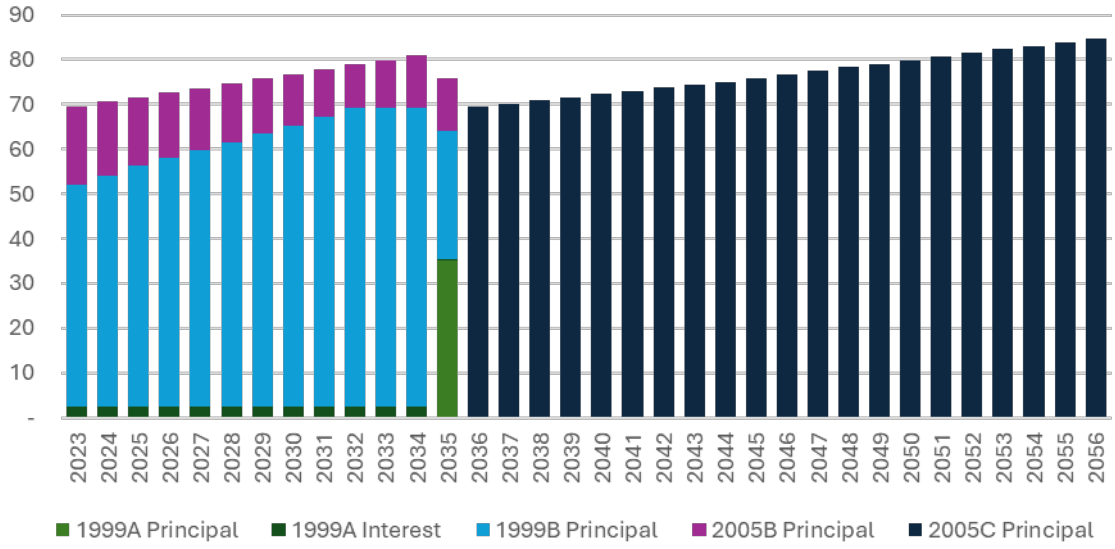
Figure 3: Dulles Greenway Average Coverage Ratio Results



Q. What is the current and future level of debt service?

A. Total debt service for 2025 was approximately $71.6 million. This is scheduled to increase to $72.6 million in 2026 and $73.7 million in 2027 and continues to increase annually through 2034 when it will reach $81 million. The figure below provides a summary of the future annual debt service from 2023 through 2056 for the four outstanding tranches of bonds.

Figure 4: Dulles Greenway Annual Debt Service 2023-2056



Q. Has TRIP II had difficulties in recent years making its annual debt service payment from its toll revenue?

A. Yes. Debt service and other costs are normally covered by revenues generated by a business. However, TRIP II has not generated sufficient net revenues to cover its debt service payments since February 2022. At that time, and each year since, TRIP II has been forced to draw down on its restricted cash in reserve (otherwise held for future distribution subject to meeting debt covenant tests) to make required debt service payments. The Greenway was required to utilize $17.6 million, $11.7 million, $8.9 million, and $7.8 million, respectively, of the existing cash reserves to meet the February 2022, 2023, 2024, and 2025 bond repayments. The current expectation is that TRIP II will continue to draw on cash reserves to meet the February 2026 bond repayments.

Q. Are there restrictions on how the reserve funds you mentioned can be used by TRIP II?

A. Yes. As is standard in project finance structures, TRIP II is required to maintain a set of dedicated reserve accounts to ensure operational stability and the timely servicing of debt. These reserves are governed by the terms of the Master Indenture, which also imposes restrictions on dividend distributions. If financial covenants are not met in any given year, any excess cash is trapped in reserve accounts for a period of one to three years. The Trust Indenture strictly governs how both revenues and reserve funds may be accessed and applied, defining the order of disbursement through a cash waterfall mechanism. These reserves accumulate throughout the year until February 15, when funds in the Senior Bonds Debt Service Account and the Early Redemption Fund are applied to pay annual debt service. For example, the reserve balance was

$199 million in December 2024, but down to $139 million in February 2025 post-debt service.

The Greenway does not have unrestricted access to these funds and use of reserves is limited to the purposes and amounts specifically permitted under the Indenture. Since 2022, reserve balances have gradually declined, driven by the need to rely on restricted cash to meet debt obligations and major maintenance needs.

Q. What has contributed to the financial performance of TRIP II?

A. On a pure operational basis, TRIP II runs an efficient business despite having to incur significant annual costs that other state roads and private toll roads in the Commonwealth do not. For example, unlike other state roads and private toll roads in the Commonwealth, the Greenway was built on private land owned in fee simple by TRIP II. As a result, TRIP II has paid more than $69 million in property taxes since the Greenway opened. It has also invested more than $125 million in local infrastructure, wildlife preservation, and other initiatives over the past 25 years—all without any taxpayer funds.

Furthermore, because part of the land occupied by the Greenway is leased from MWAA, TRIP II pays $600,000 in annual land rental fees to MWAA, which is set to increase to $2 million per year beginning in 2036. In total, TRIP II has paid approximately $14.5 million to MWAA in land rental fees through 2025.

Finally, the service agreement between TRIP II and the Virginia State Police for law enforcement response and patrols on the Greenway has increased to over $1 million annually.

As a key traffic artery in Northern Virginia, and particularly one that connects local and national transportation networks to the Dulles Airport, the Greenway's maintenance and operation has consistently contributed to the local economy. The Greenway supports direct access to Dulles Airport, the global data center hub and major employment corridors which rely on reliable east-west mobility for both their workforce and business operations.

Q. How have restrictions on toll increases impacted the Greenway's financial performance?

A. As discussed further below, the lack of toll increases has contributed to the current financial performance of the Greenway.[7] TRIP II estimates that had the requested peak tolls been awarded for 2021 and 2022, total revenues would have been approximately $3 million higher during that period, while the lack of any toll increases for 2023 and beyond equates to approximately $7 million in annual lost revenues, increasing over time as traffic grows.

TRIP II acknowledges that the Commission's decision to not approve the peak toll increases at that time was based on the uncertainty during the early pandemic. Still, the lack of a peak (since 2019) and off-peak (since 2022) toll increases during a period of the highest inflationary pressure since the 1970s, has significantly impacted TRIP II's current financial situation. In addition to requiring higher toll increases to meet TRIP II's financial obligations now, it has negatively impacted TRIP II's ability to meet these obligations for the remainder of the period in which it is authorized to

[7] *See Application of Toll Road Investors Partnership II, L.P. For an increase in the maximum level of tolls*, Final Order, Case No. PUR-2019-00218, 2021 S.C.C. Ann. Rep. 172, 174-75 (Apr. 26, 2021).

operate under the Concession and to be able to have an opportunity to earn a reasonable return during that finite period before 2056.

III. GREENWAY CURRENT TOLL RATES

Q. How are toll prices set on the Greenway?

A. Under Va. Code § 56-542 D, the Commission may approve or revise toll rates on the Greenway if it finds that such rates: (i) are reasonable to the user in relation to the benefit obtained; (ii) will not materially discourage use of the roadway by the public; and (iii) provide the operator with no more than a reasonable rate of return, as determined by the Commission.

The 2019 Amendments further require, among other things, that any application to increase toll rates include a forward-looking analysis that demonstrates that the proposed toll rates will be reasonable to the user in relation to the benefit obtained, not likely to materially discourage use of the roadway as verified by an investment-grade travel demand model and provide the operator no more than a reasonable return. The forward-looking analysis must include reasonable projections of anticipated traffic levels, including the impact of social and economic conditions anticipated during the time period that the proposed toll rates would be in effect.

The 2019 Amendments further define the term "materially discourage use" as follows:

> to cause a decrease in traffic of three or more percentage points based on either a change in potential toll road users or a change in traffic attributable to the toll rate charged as validated by (i) an investment-grade travel demand model that takes population growth into consideration or (ii) in the case of an investigation into current toll rates, an actual traffic study that takes population growth into consideration.

Finally, the Amendments direct that the "Department [of Transportation] shall review and provide comments upon the analysis to the Commission" and that the Commission may approve only one year of toll rate increases proposed by the operator.

Q. When did the Commission last approve an increase in Greenway toll rates?

A. The Commission last approved an increase in Greenway tolls in its Final Order issued on April 26, 2021, in Case No. PUR-2019-00218. In that proceeding, the Commission only approved TRIP II's proposed off-peak toll increases, and only for years 2021 and 2022. TRIP II's proposed increase to the maximum off-peak tolls for the year 2021 became effective on the date of the Final Order and TRIP II's proposed increase to the maximum off-peak tolls in 2022 became effective January 1, 2022. In deciding to approve only the off-peak tolls, the Commission found that the record supported approval of the peak tolls under the statutory criteria but instead exercised discretion to deny the majority of the proposed increases based solely on the uncertainty related to the COVID-19 pandemic.[8]

Q. What are the current toll rates on the Greenway?

A. The maximum off-peak toll for two-axle vehicles is $5.25, $10.50 for three axles, $13.10 for four axles, and $15.75 for five axles or more. The maximum peak toll for two-axle vehicles is $5.80, $11.55 for three axles, $14.60 for four axles, and $17.50 for five axles or more.

[8] *See* Final Order, *Application of Toll Road Investors Partnership II, L.P. For an increase in the maximum level of tolls*, Case No. PUR-2019-00218, 2021 S.C.C. Ann. Rep. 172, 174-75 (Apr. 26, 2021).

Q. How do the current tolls on the Greenway compare to other tolls charged in the region?

A. The tolls for the Greenway are on the low end of the range of tolls charged on toll facilities in the region. In many cases, Greenway tolls are significantly lower than other toll facilities in Virginia, particularly in the Northern Virginia region.

Toll Facilities in Northern Virginia:

Dulles Toll Road

The DTR connects from the eastern end of the Greenway to the Capital Beltway in Fairfax County in the east. DTR tolls are scheduled for regular toll increases every five years through 2048. The next toll increase is scheduled for 2028 where the full-length trip on the DTR will increase to $7.25, $4.75 for the mainline and $2.50 at the ramps. It is worth noting that the DTR ramp toll of $2.00 is collected at the Dulles Greenway Mainline Toll Plaza (prior to the Greenway transferring these amounts to MWAA) as traffic through the Mainline Toll Plaza is exiting and entering the DTR, resulting in public confusion about the ultimate recipient of these amounts.

Express Lanes

In addition to these traditional toll roads, there are several express lane facilities in the region. These express lane facilities all provide free trips for carpools or high occupancy vehicles with multiple passengers ("HOVs") and allow single occupancy vehicles ("SOVs") to use the road by paying a dynamically priced toll. The dynamic toll price varies throughout the day with lower tolls when traffic levels are low, and higher tolls as traffic levels increase.

The Interstate-495 Express Lanes are 14 miles of dedicated 2-lane express lanes in each direction in the median of the Capital Beltway. Tolls on the lanes can vary

greatly and there is no record of historical prices on the road. There is no maximum toll level on this facility. As traffic demand for the express lanes increases, so does the toll.

The Interstate-95/395 express lanes are 39 miles of reversible lanes from Courthouse Road near Fredericksburg through the Springfield Interchange with Interstate-495 to the Potomac River. Due to the reversible nature of the facility, there is a limited daytime off-peak period due to the time required to configure the facility for reversing directions. There is no maximum toll level on this facility. As traffic demand for the express lanes increases, so does the toll.

Interstate-66 ("I-66") inside the Beltway allows single-occupancy vehicles ("SOVs") to access the 10-mile road that was previously available to only high-occupancy vehicles ("HOVs") in the peak period and peak direction – eastbound into Washington, D.C. from 5:30-9:30 AM and westbound from the city between 3:00-7:00 PM. Tolls for I-66 SOVs are dynamic, increasing with demand to ensure smooth flow and reliable travel times for all users. There is no maximum toll for SOVs to ensure that free-flow travel times are maintained.

I-66 outside the Beltway Express Lanes, known as 66 Express, are 22.5 miles of dedicated 2-lane express lanes in each direction between the Beltway in Fairfax to Gainesville, which opened to traffic in November 2022. As with the 495 Express Lanes, tolls are dynamically set and vary with traffic demand.

Private Toll Facilities in Virginia:

The Pocahontas Parkway

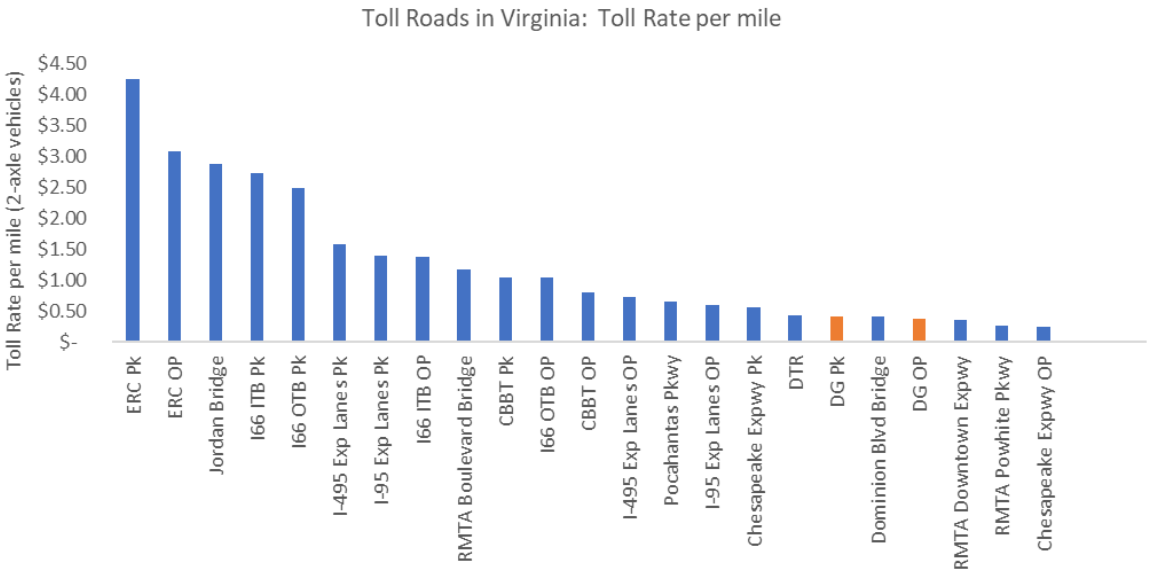
The Pocahontas Parkway opened to traffic in stages starting in May 2002. The four-lane road extends 8.8 miles and connects Chippenham Parkway at Interstate 95 in

Chesterfield County with Interstate 295 south of Richmond International Airport in Henrico County. The facility includes a high-level bridge over the James River and an interchange at Laburnum Avenue. Toll increases are regulated in the Concession Agreement as the greater of the Consumer Price Index ("CPI"), the Gross Domestic Product ("GDP"), or 2.8%.

Elizabeth River Crossings

Elizabeth River Crossings operates two tunnels and a highway in the Hampton Roads region of Virginia. The Midtown Tunnel includes a new two-lane tolled tunnel under the Elizabeth River, located parallel to the existing Midtown Tunnel and connecting the cities of Norfolk and Portsmouth. The project also involved upgrades to the existing tunnel, increasing its capacity for east to west travel by linking United States Route 58 and Interstate 264 in Portsmouth to the interchange at Brambleton Avenue and Hampton Boulevard in Norfolk. Improvements to the Downtown Tunnel have also ensured compliance with current fire and life safety standards. The MLK Extension extends Route 58 approximately 0.8 miles south from London Boulevard to Interstate 264 and includes an interchange at High Street. Toll increases are regulated in the Concession Agreement as the greater of CPI or 3.5%.

Figure 5



Q. Do all Greenway users pay the same toll price?

A. No. Toll prices vary based on the time of day, vehicle type, and point of entry or exit on the Greenway for paying customers. In addition, customers entering and exiting at Battlefield Parkway are not tolled and Va. Code § 33.1-252 requires free passage on the Greenway for numerous agencies, state officers, and state employees[9] in performance of their official duties, including employees of VDOT and emergency medical services vehicles. In 2024, the Greenway accommodated over 189,000 non-revenue trips, equivalent to over $1 million in revenue.

[9] This includes, but is not limited to, members of the Commonwealth Transportation Board, officers and employees of the Department of State Police, employees of the Department of Motor Vehicles, regional jail offices, animal wardens, the Director and officers of the Department of Game and Inland Fisheries, persons operating fire-fighting equipment and ambulances, operators of school buses being used to transport pupils to and from school, employees of any transportation facility created pursuant to the Act, and operators of commuter buses having a capacity of 20 or more passengers and public transit buses.

IV. GREENWAY PROPOSED TOLL RATES AND FINANCIAL IMPACTS

Q. What are TRIP II's Proposed Tolls for the Greenway?

A. The Company requests the Commission to approve the following Primary Proposed Tolls, effective upon issuance of a final order in this proceeding:

PRIMARY PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					PRIMARY PROPOSED OFF-PEAK MAXIMUM BASE TOLL				
2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more	2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more
$6.75	$13.50	$16.90	$20.25	$20.25	$5.60	$11.20	$14.00	$16.80	$16.80

Should the Commission determine that a more gradual increase in peak toll rates is appropriate at this time, in the alternative, the Company requests the Commission approve the following Secondary Proposed Tolls, effective upon issuance of a final order in this proceeding:

SECONDARY PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					SECONDARY PROPOSED OFF-PEAK MAXIMUM BASE TOLL				
2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more	2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more
$6.50	$13.00	$16.25	$19.50	$19.50	$5.65	$11.30	$14.15	$16.95	$16.95

Finally, consistent with the Company's view of the statutory and constitutional requirements as addressed in the Application, the Company presents its Alternative Proposed Tolls:

ALTERNATIVE PROPOSED MAXIMUM PEAK TOLLS HOURS 6:30 AM – 9:00 AM Eastbound 4:00 PM – 6:30 PM Westbound					ALTERNATIVE PROPOSED OFF-PEAK MAXIMUM BASE TOLLS				
2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more	2-Axle	3-Axle	4-Axle	5-Axle	6-Axle or more
$7.25	$14.50	$18.15	$21.75	$21.75	$6.10	$12.20	$15.25	$18.30	$18.30

The Alternative Proposed Tolls would not comply with the material discouragement requirement using the methodology applied in the 2023 Rate Case, but they would comply with the constitutional minimum in the Company's view for this Application.

Q. Do the Proposed Tolls meet the statutory criteria under the VHCA?

A. Yes, as I and Company Witnesses Steve Weller and David Cuneo will address, the Primary and Secondary Proposed Tolls will not materially discourage use of the roadway by the public when using the Commission's interpretation of material discouragement. Further, all of the Proposed Tolls (i) are reasonable to the user in relation to the benefit obtained; (ii) will not materially discourage use of the roadway applying TRIP II's methodology; and (iii) will provide TRIP II no more than a reasonable return.

Company Witness Cuneo presents the results of Steer's analyses in his Report, and Company Witness Weller addresses aspects of the material discouragement methodology and the stakeholder working group process facilitated by the Company which informed these analyses. I will address the third criteria, that the Proposed Tolls provide TRIP II with no more than a reasonable return.

Q. Please describe the financial impact that the Proposed Tolls will have on TRIP II.

A. The financial impacts of the toll increase are dependent on numerous external factors that will influence the actual traffic volumes on the Greenway, such as competition from toll-free public roads and alternative modes of transportation, population and income growth, toll prices on the Dulles Toll Road, and weather events. Nevertheless, to provide context, we have prepared projected cashflows under several plausible scenarios for future traffic during the 2026 rate year (the twelve months

beginning January 1, 2026) when the proposed tolls would be in effect to illustrate the potential financial impacts of the increased tolls on the Company's finances. Consistent with the analysis presented in the Company's prior application, scenarios provided include (i) the base case; (ii) negative annual traffic growth of 2.50% over the base case; and (iii) positive annual traffic growth of 2.50% over the base case.

My Confidential Exhibits KL-1 (Primary Proposed Tolls), KL-2 (Secondary Proposed Tolls), and KL-3 (Alternative Proposed Tolls) include projected cashflows for the 2026 rate year based on traffic outputs from the travel demand model prepared by Steer and assuming forecasted operating costs for 2026. Capital expenditures have been forecast based on typical maintenance lifecycles and planned capital and special improvement projects. Distributions to equity are restricted based on the covenant tests as outlined in the bond indentures. Projected debt service and distributions to equity (currently prevented based on the covenant tests) are discussed in Section II of my testimony.

As shown in Confidential Exhibits KL-1 and KL-2, even under the traffic sensitivities with positive traffic growth over the base case, the revenue from the Primary or Secondary Proposed Tolls would be expected to fall short of a break-even cash flow position, while Confidential Exhibit KL-3 shows a break-even cash flow position. None of the Proposed Tolls can generate any return on equity until debt covenants are met for three straight years. Accordingly, none of the Proposed Tolls are expected to generate any return on equity for 2026, again falling far short of the 14.00% per annum (and 17.5% lifetime weighted average) allowed rate of return previously authorized by the Commission.

Q. Will the Proposed Tolls generate enough revenue to allow TRIP II to meet its debt service obligations?

A. Yes. As shown in Confidential Exhibits KL-1 and KL-2, and KL-3, the expected revenues generated by the Primary and Secondary Proposed Tolls are sufficient to cover TRIP II's operating costs and debt service payments, but not capital requirements for 2026. Revenue generated by the Alternative Tolls would cover TRIP II's operating costs, debt service payments, and capital requirements for 2026.

Q. Will the Proposed Tolls provide an adequate opportunity for TRIP II to earn a reasonable return on invested capital?

A. No. As explained above, the Primary and Secondary Proposed Tolls will not generate sufficient revenue to put TRIP II in a cashflow neutral or positive position, but both meet the statutory criteria as the Commission has interpreted it and are necessary to meet debt service requirements and operating expenses. The Alternative Proposed Tolls would generate sufficient revenue to put TRIP II in a cashflow neutral position for 2026. Any of the Proposed Tolls would put TRIP II on a better path to cover costs, meet debt service coverage ratios in the future, and eventually provide TRIP II with the opportunity to earn a reasonable return on invested capital the Constitution requires.

Q. What is the Reinvested Earnings Account (the "REA")?

A. The REA is a mechanism the Commission established for TRIP II in Case No. PUA-1990-00013[10] to track and preserve TRIP II's ability to earn a reasonable return in light of the unique considerations that were necessary for setting tolls for the

[10] *See Application of Toll Road Corporation of Virginia for a certificate of authority and approval or rates of return, toll rates and ratemaking methodology pursuant to the Virginia Highway Corporation Act of 1988*, Case No. PUA-1990-00013, Final Order (July 6, 1990) ("1990 Order").

Greenway under the VHCA.[11] Specifically, the REA was established to track the hypothetical balance of invested equity capital, authorized but unearned return on equity, and actual disbursements to equity investors in TRIP II, recognizing that in later years of the Greenway's life, relatively high returns would be required in order to compensate investors for the losses incurred in the early years. The 1990 Order approved the REA as "a factor in establishing toll rates and the capital on which the Applicant will have an opportunity to earn a reasonable return, subject to the Commission's continuing jurisdiction to set tolls prospectively which provide no more than a reasonable return and does not discourage use of the road."[12]

Since construction began on the Greenway in 1993, approximately $144 million of equity capital has been contributed to fund the construction and improvement of the roadway, but equity investors have only recovered $102 million of their investment.[13]

Q. What is the current balance of the REA?

A. The REA balance is currently over $16 billion. This number represents the authorized but unearned returns since the construction of the roadway. Exhibit KL-4 to my testimony presents further detail and supporting calculations. As noted in prior applications, TRIP II equity investors have not received a return of or on their investments in the Greenway and it is unlikely the REA balance will ever be fully recovered by TRIP II's equity investors.

[11] *Id*. In establishing the REA, the Commission recognized that infrastructure projects such as the Greenway entail a large amount of risk, especially in the early years of the investment, because a significant amount of capital is invested up front based on projected usage. Over the longer term, a project like the Greenway will mature and the risk profile of the project may decrease. The REA was established for the sole purpose of tracking the extent to which the Greenway has or has not been able to actually earn the return that the Commission determined would be reasonable for the project. The accumulated balance demonstrates the current value of that reasonable return that TRIP II has not yet earned.

[12] *Id*. at 8.

[13] This number does not consider the time value of money, and as a result TRIP II's IRR is -3.5%.

Q. If the REA balance is unlikely to ever be fully recovered, why should the REA continue to be used to track equity investors authorized but unearned return on equity?

A. The REA remains relevant as it was intended to continue to track equity investors' unearned returns since the opening of the Greenway. Indeed, the Commission has consistently acknowledged that future toll increases should not be judged solely on the current return being provided by those tolls, but also to the extent that those tolls would allow TRIP II's investors to recover prior unearned returns. While the full unearned return is unlikely to ever be recovered, the REA still allows the Commission to keep track of the prior unearned returns and consider this when evaluating whether the tolls provide no more than a reasonable return.

TRIP II is nearly halfway through its concession period and has not yet been able to return its initial equity investment. Without sufficient toll increases now, and on a regular going-forward basis, TRIP II will quickly lose the ability to generate sufficient return over the life of the roadway. Further, without a realistic opportunity to meet its financial obligations, including its debt service, and earn a reasonable return from the Greenway in the near future, there will simply be no financial basis for TRIP II to commit or attract capital for future required capital investments,[14] including a new tolling system and other major future capital works as required by the Comprehensive Agreement to keep the road operating through the end of the concession term.

[14] On April 23, 2025, S&P Global Ratings downgraded TRIP II's bond rating to 'B+' and affirmed the rating outlook as 'Negative' primarily due to ongoing uncertainty regarding the timing and magnitude of toll increases. *See also* https://www.fitchratings.com/research/infrastructure-project-finance/fitch-affirms-trip-ii-dulles-greenway-bonds-at-b-outlook-negative-28-10-2025.

Q. Is TRIP II providing additional financial measures in this application to assess the reasonableness of TRIP II's return on equity ("ROE")?

A. Yes. Consistent with the analysis TRIP II provided during the course of the prior rate proceeding, Exhibit KL-5 presents an internal rate of return ("IRR") analysis. The Internal Rate of Return, or IRR, is a measure that expresses the return on an investment as an annualized percentage, reflecting both the amount of capital invested and the timing of the related cash inflows and outflows.

By way of illustration, an investment of one dollar today that results in a receipt of two dollars five years later may be described as a 100% total return. However, that description does not account for the length of time the capital is invested. When the timing of cash-flows is considered, the investment is equivalent to earning an annualized return of approximately 14.9% over the five-year period. That annualized percentage is the IRR.

Accordingly, the IRR represents the effective annual return earned by an investor over the life of an investment, taking into account the timing of when capital is invested and returned.

For the Greenway, this calculation results in an allowed IRR of 17.5% for the period ending December 31, 2025, as outlined on page 1 of Exhibit KL-5. Page 2 of Exhibit KL-5 further shows that over the same time period TRIP II earned an IRR of – 3.5%. Thus, TRIP II has historically been unable to earn an adequate return based on the toll levels that have been approved.

Q. Will the tolls proposed by TRIP II in this Application reduce the balance of the REA?

A. No. The REA will continue to grow.

Q. In summary, will the Proposed Tolls provide no more than a reasonable return to TRIP II if approved?

A. Yes. The Proposed Tolls will clearly provide no return and therefore *no more* than a reasonable return.

Q. Do you have any concluding remarks regarding the Company's request?

A. The Company is requesting to increase its toll rates to support the continued benefits of the Greenway as a safe, reliable and efficient route for users. The Company supports approval of any of the Proposed Tolls in this proceeding.

Both the Primary and Secondary Proposed Tolls meet the statutory criteria for approval as previously interpreted by the Commission. While neither the Primary nor Secondary Proposed Tolls, if approved, would cover the Company's operating costs, debt service obligations, and capital expenditures to maintain the Greenway, they would minimize the need for the Company to draw on its cash reserves to cover those costs.

The Alternative Proposed Tolls would not comply with the material discouragement requirement using the methodology applied in the 2023 Rate Case, but they would comply with the constitutional minimum in the Company's view for this Application. The Alternative Proposed Tolls would be sufficient to cover the Company's operating costs, debt service obligations, and capital expenditures to maintain the Greenway. Thus, they would allow TRIP II at least to avoid continued operating losses now and put TRIP II on a path to obtain sufficient revenue with regular, reasonable toll increases going forward, enabling it to meet financial obligations and its debt service coverage ratios, to eventually provide the reasonable return that the Constitution requires.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Confidential Exhibits KL-1, KL-2, and KL-3
Redacted Entirely for Confidential Information

Dulles Greenway Reinvested Earnings Account Calcuation

Date	Days	Beg Balance	Equity Contributions	Equity Distributions	Net Equity Movement	Authorized Return on Equity	Allowed Return	Balance
29-Sep-93		$0	$40,000,000		$40,000,000	30.0%	$0	$40,000,000
31-Dec-93	93	$40,000,000			$0	30.0%	$3,057,534	$43,057,534
31-Dec-94	365	$43,057,534			$0	30.0%	$12,917,260	$55,974,795
31-Oct-95	304	$55,974,795	$2,000,000		$2,000,000	30.0%	$13,986,031	$71,960,825
31-Dec-95	61	$71,960,825	$4,435,000		$4,435,000	30.0%	$3,607,899	$80,003,724
8-Jul-96	190	$80,003,724	$14,757,000		$14,757,000	30.0%	$12,493,732	$107,254,457
19-Jul-96	11	$107,254,457	$80,000,000		$80,000,000	30.0%	$969,698	$188,224,154
31-Dec-96	165	$188,224,154			$0	30.0%	$25,526,289	$213,750,444
1-May-97	121	$213,750,444	$3,067,000		$3,067,000	30.0%	$21,257,921	$238,075,365
31-Dec-97	244	$238,075,365			$0	30.0%	$47,745,525	$285,820,890
31-Dec-98	365	$285,820,890			$0	30.0%	$85,746,267	$371,567,157
31-Dec-99	365	$371,567,157			$0	25.0%	$92,891,789	$464,458,946
31-Dec-00	366	$464,458,946			$0	20.0%	$93,146,287	$557,605,233
31-Dec-01	365	$557,605,233			$0	20.0%	$111,521,047	$669,126,280
31-Dec-02	365	$669,126,280			$0	20.0%	$133,825,256	$802,951,536
31-Dec-03	365	$802,951,536			$0	20.0%	$160,590,307	$963,541,843
31-Dec-04	366	$963,541,843			$0	15.0%	$144,927,253	$1,108,469,096
2-Mar-05	61	$1,108,469,096		-$69,643,064	-$69,643,064	15.0%	$27,787,650	$1,066,613,682
29-Dec-05	302	$1,066,613,682		-$19,802,752	-$19,802,752	15.0%	$132,376,986	$1,179,187,915
31-Dec-05	2	$1,179,187,915			$0	15.0%	$969,196	$1,180,157,111
31-Dec-06	365	$1,180,157,111		-$12,270,735	-$12,270,735	15.0%	$177,023,567	$1,344,909,943
31-Dec-07	365	$1,344,909,943			$0	15.0%	$201,736,491	$1,546,646,434
31-Dec-08	366	$1,546,646,434			$0	15.0%	$232,632,573	$1,779,279,007
31-Dec-09	365	$1,779,279,007			$0	14.0%	$249,099,061	$2,028,378,068
31-Dec-10	365	$2,028,378,068			$0	14.0%	$283,972,930	$2,312,350,998
31-Dec-11	365	$2,312,350,998			$0	14.0%	$323,729,140	$2,636,080,137
31-Dec-12	366	$2,636,080,137			$0	14.0%	$370,062,318	$3,006,142,456
31-Dec-13	365	$3,006,142,456			$0	14.0%	$420,859,944	$3,427,002,400
31-Dec-14	365	$3,427,002,400			$0	14.0%	$479,780,336	$3,906,782,736
31-Dec-15	365	$3,906,782,736			$0	14.0%	$546,949,583	$4,453,732,319
31-Dec-16	366	$4,453,732,319			$0	14.0%	$625,230,805	$5,078,963,124
31-Dec-17	365	$5,078,963,124			$0	14.0%	$711,054,837	$5,790,017,961
31-Dec-18	365	$5,790,017,961			$0	14.0%	$810,602,515	$6,600,620,476
31-Dec-19	365	$6,600,620,476			$0	14.0%	$924,086,867	$7,524,707,343
31-Dec-20	366	$7,524,707,343			$0	14.0%	$1,056,345,217	$8,581,052,560
31-Dec-21	365	$8,581,052,560			$0	14.0%	$1,201,347,358	$9,782,399,918
31-Dec-22	365	$9,782,399,918			$0	14.0%	$1,369,535,989	$11,151,935,907
31-Dec-23	365	$11,151,935,907			$0	14.0%	$1,561,271,027	$12,713,206,934
31-Dec-24	366	$12,713,206,934			$0	14.0%	$1,784,725,269	$14,497,932,203
31-Dec-25	365	$14,497,932,203			$0	14.0%	$2,029,710,508	**$16,527,642,711**
Net Contributions/ (Distributions)			**$144,259,000**	**-$101,716,551**	**$42,542,449**			

1) The allowed return and account balances for years 1999 through 2002 do not agree with those presented in Attachment B to the TRIP II application in Case No. PUE-2003-00230. The current calculation uses the return on equity approved in the Opinion and Final Order, Case No. PUA-1990-00013.

2) With respect to the items set forth in the Equity Contribution/(Distribution) column, please note the following:
   a) The amount of $40,000,000 represents the original paid-in equity contemplated in the originally approved financing in 1993;
   b) The amounts of $2,000,000, $4,435,000, and $14,757,000 represent additional equity contributions from the partners required under an agreement with the lende
   c) The amount of $80,000,000 represents the sum of a draw of $40,000,000 under the standby equity letter of credit plus a draw of $40,000,000 under the supported
   d) The amount of $3,067,000 represents additional equity contributions from certain limited partners required under an agreement with the lenders to TRIP II; and
   e) The amounts of $69,643,064, $19,802,752 and $12,270,735 represent distributions to investors as a as a partial return on the equity invested.

3) TRIP II has determined that the REA calculation above does not account for leap years. TRIP II continues to present the REA as previously presented and approved by the Comr

Weighted Authorized Return Since Inception

Date	Days	Beg Balance	Equity Contributions	Equity Distributions	Net Equity Movement	Authorized Return on Equity	Allowed Return	Balance
29-Sep-93		$0	$40,000,000		$40,000,000	30.0%	$0	$40,000,000
31-Dec-93	93	$40,000,000			$0	30.0%	$3,057,534	$43,057,534
31-Dec-94	365	$43,057,534			$0	30.0%	$12,917,260	$55,974,795
31-Oct-95	304	$55,974,795	$2,000,000		$2,000,000	30.0%	$13,986,031	$71,960,825
31-Dec-95	61	$71,960,825	$4,435,000		$4,435,000	30.0%	$3,607,899	$80,003,724
8-Jul-96	190	$80,003,724	$14,757,000		$14,757,000	30.0%	$12,493,732	$107,254,457
19-Jul-96	11	$107,254,457	$80,000,000		$80,000,000	30.0%	$969,698	$188,224,154
31-Dec-96	165	$188,224,154			$0	30.0%	$25,526,289	$213,750,444
1-May-97	121	$213,750,444	$3,067,000		$3,067,000	30.0%	$21,257,921	$238,075,365
31-Dec-97	244	$238,075,365			$0	30.0%	$47,745,525	$285,820,890
31-Dec-98	365	$285,820,890			$0	30.0%	$85,746,267	$371,567,157
31-Dec-99	365	$371,567,157			$0	25.0%	$92,891,789	$464,458,946
31-Dec-00	366	$464,458,946			$0	20.0%	$93,146,287	$557,605,233
31-Dec-01	365	$557,605,233			$0	20.0%	$111,521,047	$669,126,280
31-Dec-02	365	$669,126,280			$0	20.0%	$133,825,256	$802,951,536
31-Dec-03	365	$802,951,536			$0	20.0%	$160,590,307	$963,541,843
31-Dec-04	366	$963,541,843			$0	15.0%	$144,927,253	$1,108,469,096
2-Mar-05	61	$1,108,469,096		-$69,643,064	-$69,643,064	15.0%	$27,787,650	$1,066,613,682
29-Dec-05	302	$1,066,613,682		-$19,802,752	-$19,802,752	15.0%	$132,376,986	$1,179,187,915
31-Dec-05	2	$1,179,187,915			$0	15.0%	$969,196	$1,180,157,111
31-Dec-06	365	$1,180,157,111		-$12,270,735	-$12,270,735	15.0%	$177,023,567	$1,344,909,943
31-Dec-07	365	$1,344,909,943			$0	15.0%	$201,736,491	$1,546,646,434
31-Dec-08	366	$1,546,646,434			$0	15.0%	$232,632,573	$1,779,279,007
31-Dec-09	365	$1,779,279,007			$0	14.0%	$249,099,061	$2,028,378,068
31-Dec-10	365	$2,028,378,068			$0	14.0%	$283,972,930	$2,312,350,998
31-Dec-11	365	$2,312,350,998			$0	14.0%	$323,729,140	$2,636,080,137
31-Dec-12	366	$2,636,080,137			$0	14.0%	$370,062,318	$3,006,142,456
31-Dec-13	365	$3,006,142,456			$0	14.0%	$420,859,944	$3,427,002,400
31-Dec-14	365	$3,427,002,400			$0	14.0%	$479,780,336	$3,906,782,736
31-Dec-15	365	$3,906,782,736			$0	14.0%	$546,949,583	$4,453,732,319
31-Dec-16	366	$4,453,732,319			$0	14.0%	$625,230,805	$5,078,963,124
31-Dec-17	365	$5,078,963,124			$0	14.0%	$711,054,837	$5,790,017,961
31-Dec-18	365	$5,790,017,961			$0	14.0%	$810,602,515	$6,600,620,476
31-Dec-19	365	$6,600,620,476			$0	14.0%	$924,086,867	$7,524,707,343
31-Dec-20	366	$7,524,707,343			$0	14.0%	$1,056,345,217	$8,581,052,560
31-Dec-21	365	$8,581,052,560			$0	14.0%	$1,201,347,358	$9,782,399,918
31-Dec-22	365	$9,782,399,918			$0	14.0%	$1,369,535,989	$11,151,935,907
31-Dec-23	365	$11,151,935,907			$0	14.0%	$1,561,271,027	$12,713,206,934
31-Dec-24	366	$12,713,206,934			$0	14.0%	$1,784,725,269	$14,497,932,203
31-Dec-25	365	$14,497,932,203			$0	14.0%	$2,029,710,508	**$16,527,642,711**
Weighted allowed return (XIRR) %						**17.5%**		

Project Internal Rate of Return Since Inception

Date	Equity Contributions	Equity Distributions	Net Equity Movement
29-Sep-93	$40,000,000		$40,000,000
31-Dec-93			$0
31-Dec-94			$0
31-Oct-95	$2,000,000		$2,000,000
31-Dec-95	$4,435,000		$4,435,000
8-Jul-96	$14,757,000		$14,757,000
19-Jul-96	$80,000,000		$80,000,000
31-Dec-96			$0
1-May-97	$3,067,000		$3,067,000
31-Dec-97			$0
31-Dec-98			$0
31-Dec-99			$0
31-Dec-00			$0
31-Dec-01			$0
31-Dec-02			$0
31-Dec-03			$0
31-Dec-04			$0
2-Mar-05		-$69,643,064	-$69,643,064
29-Dec-05		-$19,802,752	-$19,802,752
31-Dec-05			$0
31-Dec-06		-$12,270,735	-$12,270,735
31-Dec-07			$0
31-Dec-08			$0
31-Dec-09			$0
31-Dec-10			$0
31-Dec-11			$0
31-Dec-12			$0
31-Dec-13			$0
31-Dec-14			$0
31-Dec-15			$0
31-Dec-16			$0
31-Dec-17			$0
31-Dec-18			$0
31-Dec-19			$0
31-Dec-20			$0
31-Dec-21			$0
31-Dec-22			$0
31-Dec-23			$0
31-Dec-24			$0
31-Dec-25			$0
Project IRR (XIRR) since inception			**-3.5%**

DIRECT TESTIMONY OF
STEVE WELLER
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
CASE NO. PUR-2025-00191

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Steve Weller

Title: Lead, Forecasting and Analytics, North America for Altas Arteria

Summary:

Company Witness Steve Weller provides an overview of the Greenway, including its geographic location and how it fits into the overall transportation network of Northern Virginia and the Washington, D.C. metropolitan area.

Mr. Weller discusses the benefits of the Greenway and compares travel times with alternative routes. The travel time savings for users of the Greenway are reflected in the Benefit Cost Analysis presented in the Steer Report sponsored by Company Witness Dave Cuneo. Mr. Weller also describes the investments has TRIP II made in the Greenway and the surrounding road network to provide benefits to drivers of the Greenway.

Mr. Weller explains the Company's efforts to convene a stakeholder working group ("Working Group") as addressed in the 2023 Rate Case Final Order. As a result of the Working Group sessions, TRIP II has made changes to the statutorily required analyses as described by Mr. Weller as well as Company Witness Cuneo.

With respect to the proposed tolls, Mr. Weller explains how the Primary Proposed Tolls would achieve a congestion management premium in line with the historical level during 2009 to 2021, which reflects the greater benefit to users during peak times and helps reduce overcrowding during these times.

Mr. Weller also explains how TRIP II's proposed tolls increases compare to changes in the consumer price index. A peak toll rate increase of $1.57 would be required to keep pace with inflation since peak tolls were last changed in 2019, compared to the $0.95 and $0.70 increases for the Primary and Secondary Proposed Tolls, respectively. For off-peak tolls, an increase of $0.82 would be required to keep pace with inflation since off-peak tolls were last changed in 2022, compared to the $0.35 and $0.40 increases for the Primary and Secondary Proposed Tolls, respectively. For context, Mr. Weller also describes how changes in other transportation costs compare with toll increases in the Greenway.

Lastly, Mr. Weller addresses the methodology used by the Company to conduct the required material discouragement analysis. In the 2023 Rate Case, the Commission applied a methodology that compared forecasted traffic in 2024 with and without the proposed toll increases. The Company instead applied a methodology that compared forecasted traffic in 2024 with the proposed toll increases to actual traffic in 2022, when toll rates were last changed.

The Company submits that its methodology presented in the 2023 Rate Case is the appropriate approach to analyze material discouragement. Under that approach, forecasted traffic levels with the proposed tolls are compared to actual traffic levels at the time of the most recent change in toll rates (2022). The Company's approach appropriately accounts for inflation during the period in which no toll rate increases were implemented. In contrast, to the extent that the Commission's methodology only considers the impact of the tolls in 2026, the projected 2026

base traffic level under the current toll rates, without accounting for any traffic growth in the corridor, would reflect higher traffic than in 2022, when the tolls were last adjusted. This increase would be simply attributable to the decline in real toll rates due to inflation, rather than to the proposed change in tolls for 2026. In other words, evaluating 2026 traffic with 2022 toll rates to 2026 with the proposed increased toll rates for 2026 is not an apples-to-apples comparison because it does not reflect the impact of CPI on the economic value of the toll rates.

While the Company maintains that its approach is the appropriate way to apply the requirement, it has undertaken the material discouragement analysis utilizing both methodologies. These results are presented in the Steer Report.

DIRECT TESTIMONY OF
STEVE WELLER
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
BEFORE THE
STATE CORPORATION COMMISSION OF
VIRGINIA CASE NO. PUR-2025-00191

Q. Please state your name, business address, and position of employment.

A. My name is Steve Weller. I am Lead of Forecasting and Analytics, North America, for Atlas Arteria. Atlas Arteria is the owner of a 100% effective economic interest in Toll Road Investors Partnership II, L.P. ("TRIP II," or "Company").

Q. Please describe your background and your responsibilities as Lead, Forecasting and Analytics.

A. I have a Bachelor of Science in Civil Engineering from the University of Virginia and a Master of Engineering in Civil Engineering from the Pennsylvania State University. Since graduating in December 1996, I have worked for various consulting firms in Northern Virginia developing and applying demand forecasting models for urban and intercity rail projects, multimodal corridor studies, and tolled highways and express lanes around the US.

I have 28 years of experience working to develop forecasts for transportation infrastructure projects for both the public and private sectors. I began my career supporting high-speed and intercity rail and urban transit projects for several cities, states and Amtrak. In 2005, I supported the development of express lanes, including the I-495 and I-95 Express lanes, and conducting various level traffic and revenue studies across the U.S.

My toll and express lanes experience includes forecasts supporting billions of dollars of investment in projects; these include the I-495 and I-95 Express Lanes, Indiana

Toll Road, Northwest Parkway, and SR 91. I have also developed non-revenue grade forecasts for projects including the I-495 Next, I-66 Inside the Beltway, I-66 Outside the Beltway, Hampton Roads Express Lanes Network, Sydney West Connex Peer Review, I-710 South Funding Analysis, and I-710 North Study, Chicago Express Lanes. In addition, I have developed many other traffic studies to support the transportation initiatives of a variety of public agencies.

Since joining Atlas Arteria in April 2021, my role has been to support existing ALX businesses with data analytics and forecasting needs as well as conducting traffic due diligence.

Q. What is the purpose of your testimony in this proceeding?

A. I am testifying in support of TRIP II's request to increase toll rates in this proceeding. Specifically, I will provide an overview of the Dulles Greenway (the "Greenway") operated by TRIP II and its role in the larger Northern Virginia transportation network, address traffic operations and characteristics in the Greenway corridor, and discuss investments and improvements to the Greenway for the benefit of its users. In addition, I will discuss and support the proposed tolls presented by Company Witness Kara Lawrence and introduce the expert analyses sponsored by Company Witness David Cuneo with Steer Davies & Gleave, Inc. ("Steer") which demonstrate that the proposed tolls meet the statutory criteria under § 56-542 D of the Code of Virginia (the "Act").

I. OVERVIEW OF THE GREENWAY

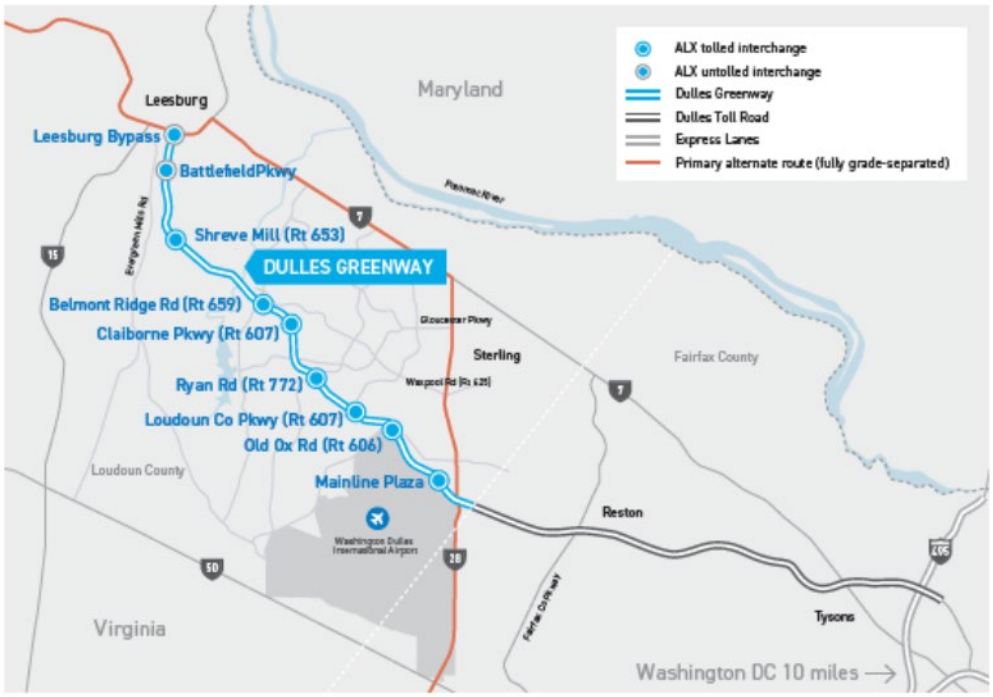
Q. Mr. Weller, please provide an overview of the Greenway and how it fits into the larger transportation network in Northern Virginia.

A. The Dulles Greenway, SR 267, is a limited-access toll road on Virginia's Primary Highway System located in Loudoun County, Virginia. The facility has been in continuous operation since 1995 and currently serves as a critical transportation link for the Northern Virginia Metropolitan region. As shown in Figure 1, the Greenway extends approximately 14 miles in an east–west alignment, connecting the Town of Leesburg at the Leesburg Bypass (US Route 15/ State Route 7) at its western terminus with the Dulles Toll Road (State Route 267) at its eastern terminus, thereby providing a direct, high-capacity link between Leesburg, Washington Dulles International Airport, Fairfax County, and the broader Washington, D.C. metropolitan area.

Figure 1: Location of the Dulles Greenway

The Greenway directly links to the regional network through a series of strategic interchanges, shown in Figure 2 below. At the western terminus, the Greenway connects with the Leesburg Bypass (State Route 7 and US Route 15), facilitating both north-south and east-west travel toward Winchester, Virginia, Maryland, and West Virginia. Along its alignment, intermediate interchanges provide access to key Loudoun County corridors such as Belmont Ridge Road (SR 659), Claiborne Parkway (SR 901) and Ashburn Village Boulevard/ Mooreview Parkway in Ashburn, and Loudoun County Parkway (SR 607), Old Ox Road (SR 606) and Sully Road (SR 28), connecting residential communities with employment and commercial hubs. At the eastern terminus, the Greenway seamlessly transitions into the Dulles Toll Road (Route 267), providing direct access to Washington Dulles International Airport, Reston/Herndon, Fairfax County, I-495 (Capital Beltway), and the interstate system. These interconnections support regional mobility, economic growth, and integration with the Virginia Department of Transportation's ("VDOT") broader transportation network.

Figure 2: Map of Dulles Greenway



The Greenway provides high-capacity, high-speed, limited-access mobility to travelers to and from Loudoun County and points north and west to the core and inner suburban areas of the Washington metropolitan area. The Greenway also provides this same high-capacity, high-speed, limited-access mobility for intra-Loudoun County trips between areas such as Leesburg, Ashburn, Brambleton, and Sterling which would otherwise use collector and non-freeway principal arterials.

In 2024, the Greenway had average daily transactions of 37,895 plus approximately 9,500 daily trips on the Greenway between Leesburg Bypass and Battlefield Parkway in Leesburg for which no tolls are collected. Through Q3 2025, the average daily transactions are 40,797 and the Fall 2025 traffic counts indicate 9,511 un-tolled daily trips on the Greenway between Leesburg Bypass and Battlefield Parkway in Leesburg.

Q. What are the key benefits for users of the Greenway?

A. Greenway users enjoy benefits including travel time savings, travel time reliability, vehicle operating cost savings, and safety advantages when compared to alternative routes. These quantitative benefits are incorporated in the Benefit-Cost Analysis presented by Company Witness David Cuneo.

Greenway users also enjoy qualitative benefits including peace of mind from driving on a well-maintained, limited-access highway; an increased sense of safety from driving on a roadway with limited truck traffic; and additional enjoyment from driving on a free-flow road with no traffic signals. These are not reflected in the precise Benefit-Cost Analysis but are still important benefits for Greenway users.

Transit users also benefit from using the Greenway as local and commuter buses use the Greenway at no additional cost. School buses use the Greenway, reducing travel time for staff and students and cost for the public school system. Law enforcement officers, animal wardens, fire and EMS vehicles and many other state employees use the Greenway toll-free. In addition, travelers in Leesburg are able to use the section of the Greenway between Leesburg Bypass and Battlefield Parkway toll-free, as I previously referenced.

There are benefits to non-Greenway travelers as well. As part of the comprehensive transportation network in the region, all travelers in and around Loudoun County benefit as toll paying customers utilize the Greenway for the benefits described and avoid the other arterials which, as a result, are less congested, providing greater local access and mobility for local travel.

Q. What are the alternative routes to the Greenway?

A. The primary alternative route for a full-length trip on the Greenway is VA Route 7 ("Route 7") and VA Route 28 ("Route 28"). Evergreen Mills Road also provides an alternative to the Greenway for trips to and from the Stone Ridge/South Riding/ Chantilly area, connecting US Route 15 south of Leesburg to the Loudoun County Parkway. For less than full length trips between Ashburn/Brambleton and Dulles, Waxpool Road, Loudoun County Parkway, Old Ox Road, and Gloucester Parkway to Route 28 provide alternatives to the Greenway.

Q. How do travel times on these alternate routes compare to the Greenway?

A. Travel time savings of using the Greenway versus non-Greenway routes provides the most direct benefit to users. Travel time savings is simply the difference between the travel time of using the Greenway versus the non-Greenway alternative route. Travel time reliability, sometimes referred to as "planning time" is a calculation of how much additional time a traveler needs to build into their schedule to be on time for most trips. Planning time is typically calculated as the 95th percentile of travel time for a specific trip in a given period. Trips are typically described in terms of peak and off-peak trips. Peak trips on the Greenway are defined as eastbound morning trips from 6:30 to 9:00 AM and westbound afternoon trips from 4:00-6:30 PM, and off-peak are all other times and the opposite direction during the peak times.

Data collected from the TomTom Travel Index ("TomTom") is used to understand the observed travel times for trips between origins and destinations by time of day over 18 months, from January 2024 through June 2025. TomTom is a Big Data provider that collects anonymous information from millions of GPS-enabled devices, such as smartphones, in-dash navigation systems, and connected vehicles. This "Floating

Car" data is combined with other sources and processed to develop comprehensive travel time data over the network. Prior to this data becoming available, the method to obtain travel time and travel reliability would be to drive the Greenway and alternative routes repeatedly to develop a database of travel times.

As shown in the Benefit-Cost Analysis, the Greenway has observed travel time savings for trips using the Greenway at all times of day. In the observed data from January 2024 to July 2025, off-peak, full-length trips have a travel time savings of 2.09 minutes, compared to 3.75 minutes in the peak period. There is limited congestion in the off-peak periods, the planning time is 0.33 minutes in the off -peak period, and 7.36 minutes in the peak periods.

Travel time savings for trips that only use a part of the Greenway are often higher than for trips that use the full length, both in terms of travel time savings and planning time savings. For example, in the observed TomTom data, peak trips from Ashburn Farm to Herndon, which would only use about half of the Greenway, the travel time savings is 4.96 minutes, and the planning time savings is 11.23 minutes, compared to the weighted full length peak travel time savings of 3.75 minutes and planning time savings of 7.36 minutes.

Q. Does the new Silver Line Metrorail create another alternative to the Greenway?

A. Yes. Phase II of the WMATA Silver Line also provides a potential alternative to the Greenway for individuals who choose to use public transit. The Silver Line is an east-west extension of the Washington Area Metrorail system, shown in Figure 3. Phase 1 of the Silver Line opened in July 2014, connecting the existing East Falls Church Station, through Tysons to Wiehle- Reston East Station. Phase 2 of the Silver Line opened in November 2022 extending to Dulles Airport and into Loudoun County,

with the last two stations located in the median of the Greenway, in the eastern third of the Greenway near Old Ox Road (Loudoun Gateway) and Mooreview Parkway (Ashburn).

Figure 3: WMATA Metrorail System Map

(source https://www.wmata.com/schedules/maps/wmata-system-map.cfm)

While the Silver Line provides alternatives for some specific markets, it is generally not a replacement for most Greenway trips. Based on Google Maps travel time

estimates, a trip from Ashburn to Herndon (proximate to both stations) at 8:00 AM on a weekday would take 12 to 18 minutes via the Greenway and Dulles Toll Road with total tolls of $7.80 ($5.80 for the Greenway and $2.00 for the Dulles Toll Road ramp toll). It would take 14 to 26 minutes via Loudoun County Pkwy to Waxpool Rd to VA28 to the Dulles Toll Road with a toll cost of $2.00. A complete transit trip would take a total of 34 minutes, with 16 minutes on the train from Ashburn Station to Herndon Station, with a train every 12 minutes. The Metrorail fare would be $4.35. This is a reasonable trip, but both the origin and the destination are within ½ mile of the stations. Access to and from the station can be a considerable input to the total length of a rail transit trip. Most Greenway users are time sensitive travelers who may not have close walking distance access and egress from Metrorail stations for their trip.

II. GREENWAY INVESTMENTS AND BENEFITS

Q. What investments has TRIP II made in the Greenway and the surrounding road network to provide benefits to drivers of the Greenway?

A. Since 2019, TRIP II has invested more than $20 million in significant improvements to the east and west ends of the Greenway to improve the flow and safety of traffic from the Greenway to the Dulles Toll Road, Leesburg local roads, and the Leesburg Bypass. At the eastern end of the Greenway, TRIP II expanded the eastbound overpass from the Greenway to the Dulles Toll Road from two to three lanes to accommodate the morning peak demand. The additional lane, which was substantially completed in January 2021, increased the capacity of this section of the road by 50% and included an additional inside lane on the Dulles Toll Road to the Centerville Road exit.

At the western end of the Greenway, TRIP II undertook multiple projects to improve the connection between the Greenway and the Leesburg Bypass and traffic flow on the Leesburg Bypass. Specifically, TRIP II modified the westbound exit to the Leesburg Bypass and partnered with Loudoun County to improve the Leesburg Bypass from the Greenway off ramp to US 15 (South King Street) interchange. In addition, TRIP II opened a new Leesburg Exit at Compass Creek Parkway.

In 2020, TRIP II also modified the west end of the Greenway to improve traffic flow. At the western end of the Greenway there are two travel lanes. Previously, the left lane was the exit ramp for travel west on the Leesburg Bypass and the right lane was the exit lane for travel on the eastbound Leesburg Bypass. The modification reconfigured the westbound exit to allow both the right and left lanes to continue westbound to the Leesburg Bypass. The right lane is a "choice lane" and allows travelers to merge into either the westbound or eastbound exit. Prior to the change, westbound Greenway traffic was hampered by the need to merge both the toll paying Greenway customers and the large number of non-toll paying Greenway users – who enter the Greenway through the free Battlefield Parkway interchange – into the single left lane to exiting onto the westbound Leesburg Bypass. Since the conversion of the intersection of Leesburg Bypass at Sycolin Rd to an overpass in 2013, the number of westbound peak (4PM-7PM) non-toll paying Greenway users from Battlefield Parkway has more than doubled from approximately 530 in 2012 to 1,111 in 2024.

In addition, improvements to the Leesburg Bypass via a 50-50 partnership with Loudoun County extended the ramp from the Greenway through to the US 15 exit (North King Street). Previously the westbound exit ramp from the Greenway served as an auxiliary lane (third lane) that became the northbound US 15 off-ramp. The

new configuration continues the auxiliary lane another 1,000 feet over the US 15 overpass, where the lane ends as the southbound US 15 ramp. This additional capacity allows for more merging distance for all traffic through this section, improving traffic flows and safety and allowing better movement for traffic exiting the Greenway. The project included the construction of new retaining walls and a full reconstruction of the exit ramp from westbound Leesburg Bypass to northbound King St. The interchange improvements were required to reduce congestion on the Greenway inadvertently caused by the public upgrade of the Sycolin Road overpass over the Leesburg Bypass in 2014.

The westbound Compass Creek Parkway exit opened in May 2019, serving the new 550-acre Compass Creek development south of Leesburg. The new exit helps distribute Greenway customers to destinations around Leesburg and Central and Western Loudoun County.

III. PROPOSED TOLLS

Q. Before addressing the proposed tolls, please address the steps TRIP II took following the last toll rate application to convene a stakeholder working group ("Working Group") and explain how that process informed the Company's analyses and proposals in this proceeding.

A. In the Company's last rate proceeding, Case No. PUR-2023-00089, the Commission concluded that "the regulatory process for implementing proposed rate changes under Code § 56-542 may benefit from the establishment of a working group designed to 'reach a consensus on the basic parameters of the forward-looking analysis and the basic inputs used in the Steer Model' as applied to this statute." The Commission further stated in its Final Order that "TRIP II may initiate a stakeholder working

group, among the participants to this proceeding desiring to be included therein, for such purpose."[1]

In accordance with this directive, TRIP II convened a Working Group attended by representatives from Commission Staff, the Office of the Attorney General's Division of Consumer Counsel, the VDOT, and the Board of Supervisors of Loudoun County. Three Working Group sessions were held between March 2025 and July 2025 during which the participants engaged in constructive dialogue concerning the network model development and calibration and the material discouragement and benefit cost analyses.

Overall, the Working Group participants discussed ways to support a more efficient and transparent process, including the provision of workpapers in native format contemporaneously with this filing in an eRoom established for Staff and participants in this case. In addition, as a result of the Working Group Process, the Company agreed to make changes in the analysis for the statutory tests.

For the material discouragement analysis, the Company expanded the geographic scope of the highway subarea traffic model to the west to include all of Loudoun County and included more locations in the screenlines presented in the calibration and model output, specifically including US 50. In addition, the Company undertook sensitivity runs as requested by Commission Staff, including model runs with reduced value of time and model runs testing the implication of near-term future transportation network improvements, which have been included in the working papers uploaded to the virtual data room established for this proceeding, coincident with this filing.

[1] *Application of Toll Road Investors Partnership II, L.P. For authorization for an increase in the maximum level of tolls*, Case No. PUR-2023-00089, Final Order at 9-10 (Sept. 4, 2024).

With respect to user benefits, the Company adjusted the Benefit Cost Analysis methodology to account for partial trips, as opposed to comparing full-length trips. Historically, the benefit cost analysis used full-length trips on the main alternative route (VA7 and 28) and weighted alternative routes (along Evergreen Mills Rd, Sycolin Rd, Waxpool Rd, Belmont Ridge Rd, and others) versus the travel time and operating cost savings of the Greenway.[2] The prior analysis compared Loudoun County total accident data to Greenway specific accident data. The partial trip methodology discussed in the working group [and applied in this case] utilizes specific origins and destinations to represent trip markets and compares the specific travel times, travel time reliability, safety and operating costs between the Greenway route and the non-Greenway route. This includes only applying the difference in safety benefits on the alternative routes to the Greenway route as opposed to comparing the Greenway to Loudoun County total accident rates. Company Witness Cuneo addresses other adjustments to the BCA in his testimony and Report.

Q. Company Witness Lawrence presents the proposed tolls requested for approval in this proceeding. Do these tolls include increases to both the peak and off-peak tolls?

A. Yes. TRIP II's proposed tolls increase the current differential between peak and off-peak tolls on the Greenway that have been in place since the Commission denied an increase in peak tolls in Case No. PUR-2019-00218. In Case No. PUE-2003-00230, the Commission approved a toll increase and congestion management pricing, which allowed for differential pricing during peak and off-peak periods, with the peak price initially calculated at a 20% premium to the base toll rate. This congestion

[2] There were limited attempts in 2019 and 2023 rate cases to account for the trips that do not use the entire length of the Greenway, but this was done by prorating the full-length trip analysis.

management premium has been in the 20% range from 2009 to 2021, when the Commission applied its discretion to allow only off-peak toll increases in 2021 and 2022, reducing the congestion pricing ratio to 10%. The Primary Proposed Tolls of $6.75 (+0.95) and $5.60 (+$0.35) for two-axle vehicles were calculated to remain close to the historical congestion management level and still provide value to customers. The Greenway provides benefits to various market segments at all times of the day, but provides the most obvious benefit during peak times as supported by Company Witness Cuneo.

As stated in the Application, TRIP II has provided analysis of an alternative toll increase, the Secondary Proposed Tolls, with a slightly higher off–peak increase to $5.65 (+$0.40) and a lower peak toll increase to $6.50 (+$0.70) for two-axle vehicles, which would reduce the congestion premium to 15% of the off-peak tolls.

As Company Witness Lawrence explains, the Primary and Secondary Proposed Tolls will allow TRIP II to be in a better financial position, although still not fully covering its obligations. Both toll requests meet the statutory requirements of the legislation utilizing assumptions and methodology as interpreted by the Commission in the 2023 Rate Case.

Company Witness Lawrence also introduces the Company's alternative toll request (the "Alternative Proposed Tolls") which reflect an increase in current peak tolls rates to $7.25 (+$1.45) and an increase in current off-peak toll rates to $6.10 (+$0.85) for two-axle vehicles. These Alternative Proposed Tolls reflect a congestion premium that, like the Primary Proposed Tolls, is close to the historical congestion management level and still provide value to customers.

Q. Why does the Company propose to increase the differential between its peak and off-tolls?

A. As the Commission noted in 2007, congestion pricing can reduce overcrowding on the Greenway during peak use hours.[3] An increase to TRIP II's peak tolls is appropriate because as traffic continues to recover to a stable position and the corridor continues to experience natural economic growth, the congestion management differential will help ensure that Greenway customers are provided uncongested roads and reliable travel times when using the Greenway. This is consistent with VDOT goals and objectives regarding the growth and development of the express lanes network in Northern Virginia over the past 15 years. These facilities have dynamic tolls to ensure customers experience uncongested travel. Higher tolls in the peak period also encourage travelers to use less congested off-peak periods where appropriate for their needs, improving the driving conditions for all drivers.

Q. For context, how does the proposed toll rate increase compare to the increase in the consumer price index ("CPI") since toll rates were last changed in 2019?

A. TRIP II's tolls have not kept pace with inflation. Both peak and off-peak tolls require significant increases of at least 25% and 15% respectively for 2026 to keep pace with inflation since their last respective increases in 2019 and 2022.

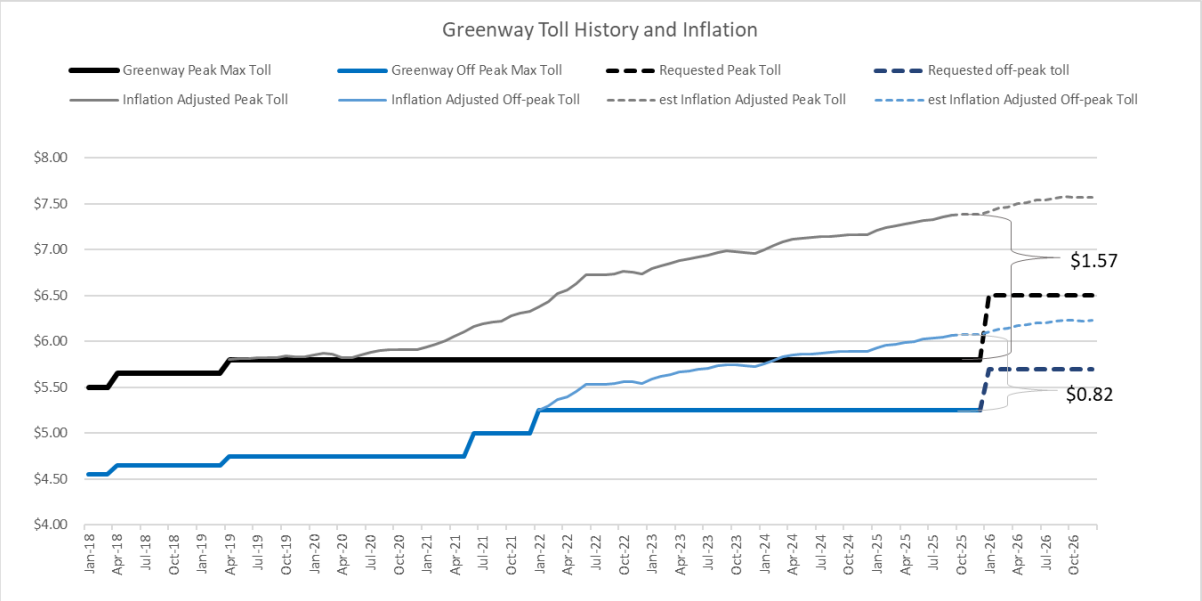
According to the Federal Reserve, inflation is the general increase in the overall price level of the goods and services in the economy. Since 1970, US CPI has increased 3.9% per year, driven by high inflationary periods in the mid 1970s and again in the late 1970s and early 1980s. CPI since 1995 has increased on average 2.5% per year, with the annual increase of 8.0% in 2022 being the highest since 1981. Inflation

[3] *Application of Toll Road Investors Partnership II, L.P.*, Case No. PUE-2006-00081, 2007 S.C.C. Ann. Rept., Final Order at 6 (Sept. 11, 2007).

impacts consumers as the cost of goods and services increase. It also impacts businesses as costs for materials, business services, and labor increase.

TRIP II has not been granted a peak toll increase since 2019 and was provided two 5% off-peak toll increases that were implemented in May 2021 and January 2022 in Case No. PUR-2019-00218. This lack of toll increases has resulted in a substantial decline in real tolls, as inflation increased at historically high rates over the past five years, levels not experienced since the 1970s. Figure 4 below shows that a toll increase of $1.57 would be required to keep pace with inflation from April 2019 to September 2025, the last month of CPI data available from the Bureau of Labor Statistics at the time of this filing. Similarly, while off-peak tolls were increased in line with inflation as a result of the 2020 Rate Case decision, they since have lagged inflation, requiring a $0.82 increase to maintain real tolls at the same level.

Figure 4: Greenway Tolls and Inflation



Q. How do changes in other transportation costs compare with toll increases in the Greenway?

A. Other transportation costs have increased over the past several years, outpacing toll increases on the Greenway. The Dulles Toll Road had toll increases in 2019 and 2023, raising full length tolls from $3.50 in 2019 to $4.75 (+36%) and $6.00 (+26%) in 2023. Loudoun County Commuter buses, which are subsidized by the Virginia Department of Rail and Public Transportation operating funds, increased from $9 to $10 (+11%) in 2018 and to $11 (+10%) in 2024. The Washington Metropolitan Area Transit Authority's maximum rail fare increased from $6.00 in 2019 to $6.75 (+12%) in 2025.

Although the Act defines the term CPI, it is not used in determining allowable toll increases for the Greenway. Importantly, toll adjustments that simply match CPI do not constitute real increases, as they only preserve tolls in real terms. This is precisely why the vast majority of private toll roads—both in the United States and globally—escalate tolls by CPI: it maintains the economic value of the toll without imposing a real-term price increase on users.

In Virginia, other privately operated toll facilities employ similar escalation mechanisms. For example, the Pocahontas Parkway uses an escalation formula based on the greater of CPI, GDP, or 2.8%, and the Elizabeth River Tunnels use the greater of CPI or 3.5%. These frameworks reflect a widely accepted industry understanding that CPI-level increases are not real toll increases.

For the Greenway, because toll elasticities remain below 1, an annual CPI level toll increase would satisfy all three statutory criteria. Accordingly, as a general matter,

CPI represents the minimum toll adjustment that the Commission could grant under the current statutory framework.

Q. Company Witness Cuneo sponsors the Company's calculation of material discouragement. Can you address the Company's recommended material discouragement methodology?

A. Yes. The Act defines "materially discourage use" to mean "a decrease in traffic of three or more percentage points." This definition was first interpreted in the Company's 2023 Rate Case. Although the Commission did not adopt the Company's interpretation, the Company continues to believe its approach is the appropriate way to apply the requirement.[4]

The Company's proposed method compares the forecasted traffic in 2026 against known, actual traffic information from the Greenway. The Company submits that its methodology presented in that case is the appropriate approach to analyze material discouragement. Under that approach, forecasted traffic levels with the proposed tolls are compared to actual traffic levels at the time of the most recent change in toll rates (2022). The Company's approach appropriately accounts for inflation during the period in which no toll rate increases were implemented.

Q. Has the Company prepared a material discouragement analysis consistent with the Commission's Final Order in the 2023 Rate Case?

A. Yes. Although the Company maintains that the calculation of material discouragement presented by Company Witness Cuneo in 2023 accurately applies the language of the statute, the Company has prepared calculations consistent with the

[4] As addressed in the Company's Application, while TRIP II raised this issue on appeal, the Supreme Court of Virginia declined to reach the issue in its Opinion.

material discouragement analysis adopted by the Commission in the 2023 Rate Case. This method uses the results of the travel demand model presented in Steer's Report to determine the forecasted traffic in 2026 without a toll increase[5] and compares it to the traffic forecasted by the model in 2026 with the proposed toll increases in place.

Q. Does the Company support this method for calculating material discouragement?

A. No. This approach does not measure whether the proposed tolls will cause a decrease in *traffic*; rather it measures whether the proposed tolls will cause a decrease in *traffic growth*. The Company does not believe this is what the Act requires. Under this view, even if ridership on the Greenway was projected to increase under proposed tolls, it would not meet the statutory requirement if ridership was projected to increase more without the new tolls. In addition, to the extent that the Commission's methodology only considers the impact of the tolls in 2026, the projected 2026 base traffic level under the current toll rates, without accounting for any traffic growth in the corridor, would reflect higher traffic than in 2022, when the tolls were last adjusted. This increase would be simply attributable to the decline in real toll rates due to inflation, rather than to the proposed change in tolls for 2026. In other words, evaluating 2026 traffic with 2022 toll rates to 2026 with the proposed increased toll rates for 2026 is not an apples-to-apples comparison because it does not reflect the impact of CPI on the economic value of the toll rates.

While the Company has presented the results under both methodologies, it maintains that its chief approach meets the statutory definition. The Primary and Secondary Proposed Tolls satisfy the material discouragement requirement under the

[5] In this analysis, the no toll change baseline assumes a flat nominal toll rate structure, which implies a real toll decrease from the prior year based on continuing inflation.

Commission's methodology, and all Proposed Tolls satisfy the material discouragement requirement under TRIP II's methodology.

Q. Does this conclude your direct testimony?

A. Yes, it does.

DIRECT TESTIMONY OF
DAVID CUNEO
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
CASE NO. PUR-2025-00191

WITNESS DIRECT TESTIMONY SUMMARY

Witness: David Cuneo

Title: Senior Vice President, Steer Davies & Gleave, Inc. (d/b/a Steer)

Summary:

Company Witness David Cuneo sponsors the report prepared by Steer (the "Report") to support TRIP II's request for approval to increase the authorized maximum tolls charged on the Greenway, including the results of the two of the statutory tests required under § 56-542 of the Code of Virginia (the "Act").

First, Mr. Cuneo describes the preparation of the traffic and revenue study which documented the investment grade travel demand model that Steer developed to forecast traffic on the Greenway, including refinements to the model and the statutory analyses incorporated as a result of the stakeholder working group.

Next, Mr. Cuneo addresses the proposed toll rates' impact on use of Greenway by the public. Specifically, Steer has analyzed material discouragement using the approach adopted by the Commission in the 2023 Rate Case, along with an additional analysis using the Company's approach, which is presented in Appendix A to the Report. For Toll Case A, TRIP II's Primary Proposed Tolls, overall transactions on the Greenway decreased by 2.5% compared to forecasted 2026 levels without a toll change. For Toll Case B, TRIP II's Secondary Proposed Tolls, traffic also reduced by 2.5% relative to the forecasted 2026 levels without a toll change. Therefore, as detailed in the Report, both the Toll Case A and Toll Case B proposed tolls meet the material discouragement test. In addition, as presented in Appendix A to the Report, Toll Case C, the Company's Alternative Proposed Tolls request, meets the material discouragement test under TRIP II's methodology. Company Witness Steve Weller addresses this methodology in his direct testimony.

Lastly, Mr. Cuneo presents the results of the benefit cost analysis ("BCA") to assess the reasonability of the benefits provided to Greenway travelers relative to the proposed toll rates. For the BCA, Steer quantified categories of Greenway benefits and costs and compared them with the benefits and costs associated with alternative routes to the Greenway. The four user benefit categories include: (i) travel time savings, (ii) reliability savings, (iii) vehicle operating cost savings, and (iv) accident cost savings. User cost is simply the cost of using the Greenway. For this Application, Steer focused on 10 key movements that included partial length in addition to full length Greenway travel. Based on Steer's analysis, the Greenway provides a BCR of 1.47 overall, with 2.00 for peak and 1.18 for off-peak for the primary toll increase request (Toll Case A). Only trucks in the off-peak provide a BCR less than 1. The results are similar for the secondary toll increase request (Toll Case B), with the Greenway providing an overall BCR of 1.48, with a 2.08 in the peak and 1.17 in the off-peak, and with trucks in the off-peak the only instance of a BCR less than 1. The results of the BCA for Toll Case C, the Company's Alternative Proposed Toll request, is included in Appendix A to the Report. The Greenway provides a BCR of 1.39 overall, with 1.88 for peak and 1.13 for off-peak for the primary toll increase request. As with Toll Cases A and B, the only period-vehicle class with a BCR below 1.0 is trucks during the off-peak.

DIRECT TESTIMONY
OF
DAVID CUNEO
ON BEHALF OF
TOLL ROAD INVESTORS PARTNERSHIP II, L.P.
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2025-00191

Q. Please state your name and position of employment.

A. My name is David Cuneo. I am a Senior Vice President at Steer Davies & Gleave, Inc. ("Steer"), a global consulting company headquartered in London. I am based in Steer's Boston office. A statement of my background and qualifications, along with my professional experience regarding the appraisal of toll-financed facilities, is included as Exhibit A.

Q. Please describe Steer and your responsibilities as Senior Vice President.

A. Founded in 1978, Steer is one of the world's largest independent specialist transportation consultancies, with U.S. offices in Boston, Los Angeles, New York, Oakland, Pittsburgh, Sacramento, San Diego, San Juan, and Washington D.C. Having worked on over 500 toll road projects around the world, Steer has developed a recognized specialty in the appraisal of toll-financed facilities, especially in the preparation of robust investment grade traffic and revenue forecasts. Steer ranked 1st in the Technical Advisors League Table (InfraNews) for Transport Infrastructure in 2024 by number of transactions successfully closed globally.

As a Senior Vice President at Steer, I lead our North American Infrastructure Team, with a particular focus on traffic and revenue forecasting for toll facilities. I am a trusted advisor to public and private sector clients, and have often presented our traffic and

revenue forecasts to the rating agencies, the US Department of Transportation Build America Bureau, and investors. I have led investment grade traffic and revenue forecasting studies for toll facilities across Virginia, including I-66 Express Outside the Beltway Lanes, Pocahontas Parkway, Chesapeake Bay Bridge-Tunnel, Elizabeth River Tunnels, and the Chesapeake Transportation System.

Q. What is the purpose of your testimony in this proceeding?

A. Steer was retained to conduct analyses to support TRIP II's request for approval by the State Corporation Commission (the "Commission") to increase the authorized maximum tolls charged on the Dulles Greenway ("Greenway"). The purpose of my testimony is to introduce Steer's findings and conclusions detailed in a comprehensive report ("Report"), which addresses two of the statutory tests required under § 56-542 of the Code of Virginia (the "Act"). Specifically, the Report details our objective, independent, expert analysis of whether the tolls proposed: (i) are reasonable to the user in relation to the benefit obtained; and (ii) will not materially discourage use of the roadway by the public.

Q. How is your testimony organized?

A. My testimony is provided in three parts:

I. Preparation of Traffic & Revenue Study

II. Proposed Toll Rates' Impact on Use of Greenway by the Public

III. Reasonableness of Proposed Toll Rates in Relation to Benefits Obtained

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the Report, attached herein as Exhibit B.

I. PREPARATION OF TRAFFIC & REVENUE STUDY

Q. Please explain how Steer conducted the analysis and prepared the Report.

A. I led the Steer team that conducted an investment grade traffic and revenue study for the Greenway which is documented in the Report. We began our study by reviewing the existing conditions of the Greenway and nearby road network. This involved reviewing and analyzing data sets of Greenway transactions and toll rates, and study area traffic levels, origin-destination trip patterns, and travel times.

To better understand the factors that influence traffic levels and growth, we reviewed socioeconomic conditions. This involved a review of population, employment, GDP, and household income levels for Loudoun County, Fairfax County, Virginia, and the U.S.

In order to analyze the impact of the proposed toll rates, we developed an investment-grade travel demand network model, which includes the impact of social and economic conditions anticipated during the time period that the proposed toll rates would be in effect (the "Steer Model"). We input the proposed toll rates into the Steer Model to forecast traffic levels in response to changes in toll rates on the Greenway and compared these forecasted 2026 traffic levels against the forecasted 2026 traffic levels with no toll rate changes to assess whether the proposed toll rates meet the material discouragement requirement set forth in the Act, as per the Commission's prior interpretation. We then conducted a benefit cost analysis to assess the reasonability of the benefits provided to Greenway travelers relative to the proposed toll rates.

Q. Company Witness Steve Weller addresses the stakeholder working group convened by TRIP II following its 2023 Rate Case proceeding ("Working Group"). Does your Report incorporate feedback from the Working Group process?

A. Yes. As explained in the Report, Steer participated in the working group sessions that covered discussions on a number of topics relating to the Investment Grade Model, Material Discouragement and User Benefit Analysis. Steer considered these discussions and as appropriate, incorporated them into the development of the Steer Model. Key updates include:

- Extending the model network to the west;
- Updating the capture model element based on post-COVID data;
- Defining two screenlines that include key locations of the Greenway and alternate roads and assessed the performance of model's forecasted total traffic passing each screenline against observed traffic levels;
- Performing the material discouragement analysis by comparing forecasted traffic for the same year with and without the proposed toll increase, consistent with the Commission's methodology in the 2023 Rate Case;
- Adjusting the BCA to focus on 10 key partial length movements in addition to full length Greenway travel; and
- Calculating the safety benefits relative to route-specific accident data.

II. PROPOSED TOLL RATES' IMPACT ON USE OF GREENWAY BY THE PUBLIC

Q. Please address the first statutory test included in the Report.

A. The Act requires that the forward-looking analysis demonstrate that the proposed tolls rates are " not likely to materially discourage use of the roadway." Under the Act, the term "materially discourage use" means:

> to cause a decrease in traffic of three or more percentage points based on either a change in potential toll road users or a change in traffic attributable to the toll rate charged as validated by (i) an investment-grade travel demand model that takes population growth into consideration.[1]

Q. How did Steer undertake the material discouragement analysis?

A. Steer prepared an investment grade traffic and revenue forecasting model and used it to produce traffic forecasts that we analyzed for material discouragement. As Company Witness Weller explains, the Company maintains that the approach used in the 2023 rate case, Case No. PUR-2023-00089 (the "2023 Rate Case"), is the approach methodology for analyzing material discouragement. The Commission did not adopt this approach and supported Staff's methodology. For purposes of this proceeding, Steer analyzed material discouragement using the approach adopted by the Commission in the 2023 Rate Case, and included an additional analysis using the Company's approach, which is presented in Appendix A to my Report.

[1] Va. Code § 56-542 A.

Q. How did you determine whether the proposed toll price increases would materially discourage the use of the roadway by the public?

A. We developed the Steer Model and used it to forecast Greenway transactions under the proposed toll rate to satisfy the requirement to use an investment grade travel demand model. Steer has a long-history of developing investment-grade travel demand models and using them to prepare forecasts to successfully support the financing of toll facilities. Within Virginia alone, Steer has prepared investment-grade traffic and revenue forecasts for the I-66 Express Outside the Beltway Lanes, Pocahontas Parkway, Chesapeake Bay Bridge-Tunnel, Elizabeth River Crossings, Dominion Boulevard Veteran's Bridge, and Chesapeake Expressway. We used this experience to develop the customized travel demand Steer Model for the Greenway.

Q. How did you develop the Steer Model for use in TRIP II's Application?

A. As detailed in the Report, we built the Steer Model by extracting information from the latest version of the Metropolitan Washington Council of Governments ("MWCOG") regional travel demand model. Unadjusted, the MWCOG model is not an investment grade model. It is a classic 4-step model system that includes the steps of (1) trip generation, (2) trip distribution, (3) mode choice (transit or highway), and (4) assignment. In the trip generation step, the model estimates how many trips are produced in and attracted to an area. In the trip distribution step, the model connects a trip produced in an area with trips destined in another area forming an origin-destination ("OD") trip. In the mode choice step, the model estimates how many OD trips use different modes. In the assignment step, the trips by mode are assigned to the network.

The relationships in the MWCOG model have been established based upon observed conditions in the model coverage area and then used to forecast travel in the future. It is the primary tool used for transportation planning in the Washington, D.C. metropolitan area. The MWCOG model has over 3,700 traffic analysis zones ("TAZs"), which represent geographical areas from which trips are originated or attracted to, and almost 50,000 links representing segments of the highway network.

We extracted a subarea from the MWCOG model to form our own model that contains the highway network and trip matrices for a coverage of 769 TAZs. With the extracted files, the Steer Model focuses on the last of the 4 steps, namely assignment. With a smaller coverage area, we further refined the relationships so that it produced traffic forecasts that accurately represented observed travel along the Greenway and nearby locations. A key element of this refinement was the preparation of a route choice capture model to allocate trips onto tolled routes using the Greenway or alternate routes.

This is the methodology Steer often applies to develop investment grade forecasts for public and private sector clients around the world. The development and calibration of the investment grade model is not a specifically prescribed process. Utilizing extensive team experience, and guidance from published sources such as the VDOT Travel Demand Modeling Policies and Procedures, US guidance and UK guidance, the Steer team developed a model that balances traffic, travel times, and costs by time of day, representing observed data in a way that is not overly specified such that the model can accurately forecast changes in socioeconomics and transportation network details.

Q. Steer produced forecasts of 2024 traffic in the 2023 Rate Case Application. How did those forecasts compare to observed traffic in 2024 and what lessons were applied for this forecast?

A. For the 2023 Rate Case, Steer developed a similar investment grade model using older data because more recent data would be impacted by the COVID pandemic and pandemic recovery effects. The 2023 forecast for 2024 was 38,797 daily transactions. The observed 2024 Greenway average daily transactions was 37,895. The Steer Model forecast traffic was 2.4% above the observed traffic, which is a strong outcome, particularly given that the forecast was produced during a time of uncertainty as return to office patterns were shifting and congestion across the network was returning from low pandemic levels. The toll choice capture model was based on older, pre-pandemic data and behavior. Steer applied experience and knowledge from the prior model development, along with input from the Working Group, to expand the sub area network to the west and calibrate the model to more recent observed data to develop the Steer Model for the 2025 Rate Case.

Q. How did Steer assess the reasonableness of the Steer Model's forecasts?

A. Steer verified the reasonableness of the Steer Model's forecasts through an extensive model calibration and validation process and a review of the toll elasticities (which are a measure of how much traffic volume changes in response to changes in toll rates) implied by the model's traffic forecasts.

For the model validation, we verified that the forecasted traffic levels and travel times for the base year closely match the observed levels along the Greenway and key alternatives.

We evaluated the implied toll elasticities by running the model with the proposed toll rates. We then calculated toll elasticities by dividing the traffic percentage change by the toll rate percentage change, resulting in implied toll elasticities around -0.18 for peak travel and -0.36 for off-peak travel and -0.28 at the daily level. These toll elasticities are similar to the elasticities of -0.11 for peak and -0.24 for off-peak that we had previously estimated using an econometric model that estimates the relationship between Greenway traffic and various economic factors such as employment and toll rates. The Steer Model's implied toll elasticities also fall within the range of -0.07 and -0.42 that we have found for other North American toll facilities and the historical toll elasticities observed for the Dulles Toll Road which ranged from -0.107 to -0.345.[2]

Q. What were the results of the material discouragement analyses for the proposed toll rates?

A. We analyzed TRIP II's two sets of proposed toll rates: the Primary Proposed Tolls, referred to as Toll Case A in the Report, and the Secondary Proposed Tolls, referred to as Toll Case B in the Report. For Toll Case A, overall transactions on the Greenway decreased by 2.5% compared to forecasted 2026 levels without a toll change. For Toll Case B, traffic also reduces by 2.5% relative to the forecasted 2026 levels without a toll change. Therefore, as detailed in the Report, both the Toll Case A and Toll Case B proposed tolls meet the material discouragement test. [3]

[2] Stantec, *Dulles Toll Road Investment Grade Traffic and Revenue Study, Final Report*, December 6, 2021.
[3] As presented in Appendix A to the Report, Toll Case C, the Company's Alternative Proposed Tolls request, meets the material discouragement test under TRIP II's methodology. Company Witness Steve Weller addresses this methodology in his direct testimony.

III. REASONABLENESS OF PROPOSED TOLL RATES IN RELATION TO BENEFITS OBTAINED

Q. Please address the second statutory test addressed in the Report.

A. In addition to the material discouragement test, the Act states in relevant part that "Any application to increase toll rates shall include a forward-looking analysis that demonstrates that the proposed toll rates will be reasonable to the user in relation to the benefit obtained."

Q. How did Steer determine whether the proposed toll rates are reasonable to the user in relation to the benefit obtained?

A. Steer assessed the user benefits of the proposed toll rate changes following the guidance and best practices recommended by the U.S. Department of Transportation ("USDOT") for developing a benefit-cost analysis.[4] In addition to USDOT guidance, Steer used other sources where appropriate as addressed in my testimony and cited the Report. A benefit-cost analysis ("BCA") provides a systematic framework for quantifying and evaluating the expected benefits and costs of proposed changes to the Greenway's toll rates. While we utilized guidance from the USDOT framework, it was necessary for us to customize our analysis to the requirements of the Rate Case application. Notably, the USDOT guidance relates to estimating the benefits of a project relative to its costs; in contrast, our BCA is analyzed at the user level, with the costs being the toll cost as opposed to the costs of building the Greenway. This user-level BCA is unique, we are not aware of any

[4] U.S. Department of Transportation, Benefit-Cost Analysis Guidance for Discretionary Grant Programs, February 2021.

other similar analyses, and thus there are certain adjustments and adaptations of the USDOT framework that are necessary to perform the analysis.

The BCA considers the materiality of benefits and costs to focus efforts on estimating impacts that represent a large share of total benefits and costs. For example, we excluded benefits related to emission reductions because the initial estimates were not appreciable in the context of total benefits and costs. Additionally, the BCA assumes the toll rate for all transactions, while, in reality, around 1% of transactions are made by emergency vehicles, school buses and commuter buses who do not pay tolls. Further, we have not considered the benefits from the approximately 3 million annual trips that utilize the Greenway within Leesburg using the west facing Battlefield Parkway ramps that do not appear as a transaction. The BCA also does not reflect qualitative benefits to users, as I will later address.

Q. Please explain how the BCA was conducted.

A. For the BCA, Steer quantified categories of Greenway benefits and costs and compared them with the benefits and costs associated with alternative routes to the Greenway.

The four user benefit categories include: (i) travel time savings, (ii) reliability savings, (iii) vehicle operating cost savings, and (iv) accident cost savings. User cost is simply the cost of using the Greenway.

Following US DOT's guidance, we established several classes of users to ensure proper representation of how each class of user may value the various benefits based on their trip purpose or vehicle class. The classes included:

- *Personal Travel*: users making trips related to work, shopping, school, or other personal reasons.
- *Business Travel*: users making trips related to official business.
- *Airport Trips*: users making trips on the Greenway to travel from Washington Dulles International Airport (access) and after they return to Washington Dulles International Airport (egress). Based on discussions during the working group sessions, we have revised the estimation of Airport trips to not include workers commuting to the airport and thus this represents a smaller share of trips than in the past.
- *Truck Trips*: users operating heavy-duty vehicles (class 2-4 or vehicles with 3-or-more axels).

Q. What trip movements along the Greenway were considered in the BCA?

A. Unlike prior rate case applications that focused on the full-length movement along the Greenway, this analysis evaluates the key movements that represent the majority of Greenway trips. When considering travel in the eastbound direction, there are 35 possible entry-exit ramp movements for tolled traffic.[5] It is impractical to expand the analysis from a single entry-exit ramp movement as had been considered in prior rate cases to 35 entry-exit ramp movements and the thousands of specific Origin Destination pairs ("OD pairs" or "OD") that these movements would contain. Therefore, we identified the entry-exit ramp movements that represented the highest share of trips and considered these to be the "key movements." The top 10 key movements represent over

[5] There is an additional non-tolled movement between Leesburg Bypass to Battlefield Parkway.

90% of all tolled trips using the Greenway. Thus, we focused our analysis on these 10 key movements.

To perform the BCA for each of these key entry-exit ramp movements, we used TomTom trip pattern data to identify the OD pairs with the most trips, which we then used in the rest of the BCA to represent the starting and ending point for each key movement, calculating the benefits and costs of the Greenway and alternate routes between each OD pair.

Q. How did the BCA quantify and monetize the travel time savings that benefit drivers on the Greenway?

A. For purposes of the BCA, we quantified personal travel time savings from data from TomTom International BV ("TomTom") from January 2024 through June 2025 and monetized them based on the values of travel time savings ("VTTS"). TomTom is a big data provider that collects and processes anonymous information from millions of GPS-enabled devices, such as smartphones, in-dash navigation systems, and connected vehicles to develop comprehensive travel patterns and travel times data over the network. The monetized VTTS represents the dollars per-person per hour that are assumed to be saved when travelers choose between the Greenway and alternative routes.

Q. How did you calculate the VTTS for each of the four classes of users?

A. For personal travel, we assumed the Greenway personal travel users reside or work within Loudoun County and Fairfax County and following US DOT guidance, calculated VTTS for personal travel, including commuting trips, as 50% of the hourly median annual household incomes for Loudoun and Fairfax counties in 2023, converted to 2024

dollars. Table 6.3 in the Report shows how the county-level demographic data was used to calculate the hourly median annual household incomes and the VTTS per vehicle. To estimate the VTTS on a per-vehicle basis, we multiplied VTTS in dollars per person-hour by the average vehicle occupancy rates.

For business travel, we estimated the VTTS based on the regional median hourly wage, consistent with US DOT guidance. Additional detail on the calculations to estimate the VTTS for business travel can be found in Table 6.4 of the Report.

For air travel, given the importance of being on time, travelers using the Greenway for airport trips are expected to have higher VTTS compared to other personal travelers. To account for this overall higher value placed on personal and business air travel, we adjusted the personal travel VTTS per vehicle by a factor of 1.35 based on guidance from Transportation Research Records to estimate a VTTS for airport trips, which is reflected in Table 6.5 of the Report.

Likewise, Table 6.6 of the Report outlines the steps taken to estimate the VTTS for truck trips, which is based on time-dependent components of truck operating costs, including driver wages and benefits and supply chain costs.

Q. How did the BCA measure and quantify travel time reliability?

A. We measured travel time reliability by estimating the additional time travelers plan to offset potential delays, a concept known as "Buffer Time." Although USDOT guidance does not provide specific recommendations on how to measure travel time reliability, the Federal Highway Administration ("FHWA") has developed and recommended certain

reliability metrics that include, among others, "Buffer Time" and "Buffer Time Index," "Planning Time" and "Planning Time Index," and "Travel Time Index."

For purposes of the BCA, we adopted the FHWA's recommended approach for measuring travel time reliability based on Buffer Time. Buffer Time is estimated as the difference between planning (95th percentile) and average (mean) observed travel times. Figure 6.3 in the Report provides an example calculation of travel time reliability, including the calculation of Buffer Time.

To convert the travel time reliability savings into a monetary value, we used a value of reliability ("VOR"), and assumed a reliability ratio of 1.2 for autos based on the opinion of the prior Hearing Examiner. The reliability ratio is the ratio of the VOR to the VTTS. For trucks, we use a reliability ratio of 1.5 per FHWA[6] and also supported by studies focusing on the trucking industry, which estimate the value of reliability at 1.49 times the value of time for shippers and freight carriers.[7,8]

Q. What did Steer conclude with regard to travel time savings and reliability benefits for Greenway users?

A. Steer concluded that both the Greenway's lower congestion and higher posted speed limits provide most users with travel time reductions and increased reliability on their trips compared to alternative routes.

[6] FHWA, Does Travel Time Reliability Matter? FHWA-HOP-19-062, 2019, p. 14

[7] Shams, K., Asgari, H., and Jin, X., "Valuation of Travel Time Reliability in Freight Transportation: A Review and Meta-Analysis of Stated Preference Studies," Transportation Research Part A: Policy and Practice, 102, pp. 228–243, 2017.

[8] Shams, K., Jin, X., Fitzgerald, R., Asgari, H., and Hossan, M.S., "Value of Reliability for Road Freight Transportation: Evidence from a Stated Preference Survey in Florida," Transportation Research Record 2610, pp. 35-43, 2017.

The weighted average travel time savings of the Greenway routes compared to the alternate routes across the 10 ODs is 4.19 minutes in the peak and 3.19 minutes in the off-peak. As shown in Table 6.8 of the Report, the value of these time savings for peak periods is estimated to be $3.44 for peak travel and $2.65 for off-peak trips.

We similarly found reliability benefits associated with the Greenway. The greater predictability in travel times afforded to Greenway users results in reliability savings during peak periods of 7.86 minutes and 4.3 minutes in the off-peak. These convert into monetary reliability savings for peak travel of $7.79 and $4.27 for off-peak.

Q. Does the Greenway provide vehicle operating cost benefits to its users as compared to alternative routes?

A. Yes, depending on the OD being considered, the Greenway can provide its users savings in vehicle operating costs. The price of fuel, for example, is an important source of variable operating cost savings to vehicle operators. While the price of fuel may not differ across the Greenway and alternative routes, fuel consumption rates are closely tied to vehicle operating speeds, and speeds and distances can vary between the Greenway and alternative routes. We also considered maintenance, repair, and tire costs to vary by distance traveled in the BCA.

Q. How did the BCA calculate the vehicle operating cost benefits the Greenway offers its users?

A. To assess the vehicle operating costs related to fuel, we obtained average travel time data from TomTom, which indicated that vehicles travel faster on the Greenway. We also obtained the prevailing average retail fuel price for regular gasoline and diesel in the

Lower Atlantic region, consistent with the period of the vehicle travel time data from TomTom. We also used national-level marginal vehicle operating cost data from the American Automobile Association for autos and the American Transportation Research Institute for trucks.

Q. What did you conclude with regard to the vehicle operating cost benefits the Greenway provides to its users?

A. We concluded that vehicle operating costs are similar between the Greenway and alternate routes, with the average auto savings of $0.17 in the peak and $0.09 in the off peak and average truck savings of $0.00 in the peak and $0.16 in the off peak as indicated in Table 6.12 of the Report.

Q. How did the BCA calculate the safety benefits the Greenway provides to its users?

A. We calculated the safety benefits by comparing vehicle accident rates on the Greenway with vehicle accident rates on alternative routes. We then estimated the monetized value of these benefits based on crash-cost valuations provided by the USDOT and FHWA.

Q. What did you conclude with regard to the safety benefits for travelers on the Greenway as compared to alternative routes?

A. We concluded that the Greenway provides safety benefits to users by reducing the likelihood of accidents in the categories of fatalities, incapacitating, non-incapacitating and not injured, and slightly higher in the possible injury category. As indicated in Table 6.16 of the Report, the differences in accident frequency leads to an average safety savings of $1.67 per Greenway trip relative to alternate routes.

Q. How do total benefits compare to current toll rates on the Greenway?

A. The BCA results in a positive weighted average benefit cost ratio ("BCR") of 1.61 overall, with 2.32 and 1.25 for peak and off-peak periods, respectively compared to the current Greenway toll rates. When viewed at the user class level, the benefits exceed the costs for all classes of users at all times, with the exception of truck travelers during off-peak times. Notably, truck travelers during off-peak periods constitute only 2.8% of users. The full results are presented in Table 6.17 of the Report.

Q. How do total benefits compare to the proposed toll rates on the Greenway?

A. Based on our analysis, which is summarized in Table 6.18 of the Report, the Greenway provides a BCR of 1.47 overall, with 2.00 for peak and 1.18 for off-peak for the primary toll increase request (Toll Case A). Similar to the no toll increase scenario, only trucks in the off-peak provide a BCR less than 1. The results are similar for the secondary toll increase request (Toll Case B), with the Greenway providing an overall BCR of 1.48, with a 2.08 in the peak and 1.17 in the off-peak, and with trucks in the off-peak the only instance of a BCR less than 1. The full results are presented in Table 6.19 of the Report. [9]

Q. Does your analysis include any qualitative benefits of using the Greenway?

A. No. Steer's analysis did not capture the additional qualitative benefits that users derive from driving on the Greenway. Such qualitative benefits include peace of mind from driving on a well-maintained and limited access highway, an increased sense of safety

[9] The results of the BCA for Toll Case C, the Company's Alternative Proposed Toll request, is included in Appendix A to the Report. The Greenway provides a BCR of 1.39 overall, with 1.88 for peak and 1.13 for off-peak for the alternative toll increase request (Toll Case C). As with Toll Cases A and B, the only period-vehicle class with a BCR below 1.0 for Toll Case C is trucks during the off-peak.

from driving on a roadway with limited truck traffic, and additional enjoyment from driving on a free-flow road with no traffic signals. Therefore, if qualitative benefits were somehow quantified and reflected in the BCR, they would be even higher.

Q. Based on your analysis and the findings in the Report, are the proposed toll rates for the Greenway reasonable to the user in relation to the benefit obtained?

A. Yes.

Q. Please summarize the Report's key findings.

A. The attached Report details the development of the Steer Model and the forward-looking analysis undertaken by Steer to evaluate the two statutory tests. Based on Steer's analysis, the proposed toll rate increases for Toll Case A and Toll Case B are not likely to materially discourage use of the roadway and will be reasonable to Greenway users in relation to the benefit obtained.

Q. Does this conclude your direct testimony?

A. Yes, it does.

David Cuneo

Senior Vice President

I am an engineer by training who has spent my whole career focused on transportation. This experience has taken place at an engineering firm, followed by an academic institution, then at an airline, and now at a consulting firm. This diverse background has provided me with a broad understanding of transportation projects and the essential elements required for their success. I have always been attracted to transportation, as it affects people's lives every day.

I specialize in travel demand forecasting, transportation planning, economics, and pricing and revenue management, with a key focus on toll facilities. My work in transportation has included domestic and international work on airline, highway, rail, and public transportation projects.

I lead Steer's North American Toll Facilities and Highways team. I have managed and led many traffic and revenue studies and am a trusted advisor to public and private sector clients alike. Recent traffic and revenue projects have focused on bridges, managed lanes, P3 toll roads, and seasonal toll facilities.

I joined Steer with the acquisition of the transportation planning capabilities of CRA International, and I have also worked for Northwest Airlines, the Intelligent Transportation Systems Laboratory at MIT, and at Parsons Brinckerhoff.

Relevant skills

Traffic & Revenue Forecasting & Analysis: While an essential service, the provision of transportation must still constitute a solid business case for transportation providers to remain operational. Therefore, it is essential to understand the revenue potential of transportation projects. Revenue forecasting and analysis has been a consistent theme of David's work, from his earlier airline revenue management focus to his recent assessments of the revenue generating potential of transportation infrastructure projects, including toll facilities and high-speed rail. He has served as project manager and lead modeler for many traffic and revenue studies.

Travel Demand Forecasting: A solid understanding of travel demand is an essential part of transportation planning, and David has been involved in travel demand forecasting for many transportation studies. He has led and managed the development and application of demand models for use in studies ranging from alternatives assessments, comprehensive transportation plans, and accessibility studies. In these studies, he has worked with planners and engineers to ensure that the demand forecasting is conducted in a manner to provide useful forecasts that can support decision making.

Qualifications

Massachusetts Institute of Technology
MS Transportation
1998

Washington University
BS Civil Engineering,
BS Engineering and Public Policy
1994

Professional memberships

Engineering in Training

Missouri: 40827-E

Years of experience

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Projects summary

	Project	Client	Year/Location	Role
Traffic & Revenue Forecasting & Analysis	Chesapeake Transportation System Traffic & Revenue Support	City of Chesapeake	2010-2025, Chesapeake, VA	Project Manager /Project Director
	LSIORB Traffic & Revenue Support	KYTC	2017-25, Louisville, KY	Project Director
	Puerto Rico Toll Study	PRHTA	2018 & 2021-2023, Puerto Rico	Project Director / Peer Reviewer
	Chesapeake Bay Bridge-Tunnel Traffic & Revenue Support	Chesapeake Bay Bridge-Tunnel District	2014-25, VA	Project Manager / Project Director
	North Tarrant Express Refinancing	NTE Mobility Partners	2018-25, TX	Project Director
	LBJ Express Lanes Refinancing	LBJ Infrastructure Group	2018-25, TX	Project Director
	NYC Congestion Charging Study	Port Authority of NY & NJ	2022-25, NY/NJ	Project Director
	I-10 Calcasieu River Bridge	Confidential	2021-23, LA	Project Director
	I-77 HOT Lanes T&R	Various	2012-25, Charlotte, NC	Project Manager / Project Director
	Elizabeth River Crossing Traffic & Revenue	Elizabeth River Crossing LLC	2020-25, VA	Project Director
	I-495/I-270 Managed Lane Traffic & Revenue Study	Confidential	2018-2020, MD	Project Director
	PR-22/PR-5 T&R Support	Metropistas	2012-2021, San Juan, PR	Project Director/Project Manager
	SH 288 Toll Lanes T&R Support	Blueridge Transportation Group	2013-2022, Houston, TX	Project Director / Peer Reviewer
	Service Plaza Forecast Review	Confidential	2020	Project Director
	I-10 Mobile River & Bayway Traffic & Revenue Study	Confidential	2018-19, Mobile, AL	Senior Advisor / Peer Review
	Joliet Bridge Traffic & Revenue Study	Confidential	2018, Joliet, IL	Project Director
	American Roads raffic & Revenue	American Roads	2015-18, AL & MI	Project Director

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I-55 Managed Lanes T&R Study	Illinois DOT	2016-2019, Chicago, IL	Project Director
A25 Sell-Side Traffic & Revenue Study	Macquarie	2017-18, Montreal, QC	Peer Review
I-75 Traffic Advisor	Confidential	2018, Detroit, MI	Project Director
I-66 Outside the Beltway HOT Lanes T&R Study	Express Mobility Partners	2016-17, Washington, D.C./VA	Project Director
Toll Revenue Increase Opportunities for Operating Concession	Confidential	2016-2017	Project Director
Indiana Toll Road T&R Study	Various	2014-16, Indiana	Project Director / Peer Reviewer
Pocahontas Parkway T&R Study	Confidential	2015-2016, Richmond, VA	Project Director
Brent Spence Bridge T&R Study	Ohio DOT / KYTC	2012-2015, Cincinnati, OH	Project Manager /Project Director
Illiana Corridor T&R Study	Illinois DOT	2013-2014	Project Manager
US 36 Express Lanes Traffic Advisor	Confidential	2012, Denver, CO	Project Director
Tolled Urban Road Project in Mexico	ICA	2012, Mexico	Project Director
Georgia Northwest Corridor Traffic and Revenue Study	Georgia Dept. of Transportation	2009-11, Atlanta, GA	Project Manager
Toll Road / Rail Corridor T&R Forecasting	Confidential	2011, San Juan, PR	Project Manager
Hampton Roads Bridge-Tunnel Conceptual Proposal	ACS Development	2010-2011, Norfolk, VA	Project Manager
Traffic Advice on a Distressed Toll Road	Confidential	2010, Southern California	Project Manager
Jordan Bridge Traffic and Revenue Advice	BBVA	2010, Chesapeake, VA	Project Manager
Advice on Grand Parkway Market Valuation	Houston-Galveston Area Council	2008-2009	Project Manager
Chesapeake Expressway Traffic and Finance Study / Dominion Boulevard T&R Forecasting	City of Chesapeake	2008-2010, Chesapeake, VA	Project Manager

	New Jersey Asset Monetization Study	Department of Treasury, State of New Jersey	2006-2007, New Jersey	Demand Modeler
	Coleman Bridge Toll Rate Study	Virginia Department of Transportation	2004-2005, Yorktown, VA	Project Manager
	Amtrak Northeast Corridor Revenue Maximizing Fares	US DOT Office of Inspector General	2005, Northeast US	Modeler Designer

	Project	**Client**	**Year/Location**	**Role**
Travel Demand Forecasting	I-25 South PEL & EA Traffic Modelling	CDOT	2016-18, Colorado	Project Director
	Uber Elevate Demand Study	Uber	2017, Dubai	Project Director
	Intercity Passenger Rail	Confidential	2009-10, Mexico	Lead Modeler
	Tier 1 EIS for High-Speed Ground Transportation in Atlanta-Chattanooga	Georgia Department of Transportation	2007-2009, Georgia and Tennessee	Demand Modeler
	A Major Highway/Toll Road Controversy	City of Golden	2006-2009, Denver, CO	Project Manager, Lead Modeler

	Project	**Client**	**Year/Location**	**Role**
Transportation Project Evaluation	Strategic Regional Thoroughfare Plan	Atlanta Regional Commission	2010-2011, Atlanta, GA	Analyst
	Mobility Alternatives Finance Study	City of Austin and CTRMA	2005-2006, Austin, TX	Lead Modeler and Analyst
	Decision Support Tool Analysis for Car hauler	Confidential	2008, US	Project Manager and Lead Analyst

	Project	**Client**	**Year/Location**	**Role**
Aviation	Aviation Unfair Pricing	European Commission	2004-2005, Brussels	Pricing Expert
	Regional Airline Spin-off Valuation	Confidential	2003, US	Lead Analyst
	Impact of Airline Withdrawal	Confidential	2003, US	Analyst
	Overbooking Strategy	Northwest Airlines	2001-2002, St Paul, MN	Lead Analyst
	Revenue Management System Enhancements	Northwest Airlines	1998-2002, St Paul, MN	Lead Analyst and Business Partner

Selected projects

I-66 Outside the Beltway Express Lanes

Client *Express Mobility Partners*
Year/Location *2016-17, VA*
Position Held *Project Director*

David was Project Director of the Steer team that was traffic advisor to the winning bidder of the managed lane P3 project. He oversaw the development of a managed lane forecasting model and helped present the T&R forecasts to the lenders traffic advisors, rating agencies, and TIFIA, leading to a successful financial close in 2017..

I-495 / I-270 Managed Lane Bid

Client *Confidential*
Year/Location *2018-20, MD*
Position Held *Project Director*

David served as the Project Director for this assignment to develop traffic and revenue forecasts to support our client's P3 bid for proposed managed lanes along I-270 & I-495 in Maryland. David helped oversee the development of a custom managed lane forecasting model and the preparation of the traffic and revenue forecasts. He also presented our forecasts to the rating agencies. He participated in a coordination role for an add-on assignment to perform a transit and mobility planning study for the proposed managed lanes.

Chesapeake Bay Bridge-Tunnel Traffic & Revenue Study

Client *Chesapeake Bay Bridge and Tunnel District*
Year/Location *2014-25, VA*
Position Held *Project Manager / Project Director*

David led Steer's work to prepare the traffic and revenue forecasts that were used to help support the bond issuance for the Thimble Shoals Project. In this role, he oversaw the development of forecasts that used econometric and network models and utilized data from a travel survey, GPS travel times, and cellphone trip patterns. He presented the forecasts to the credit rating agencies, TIFIA, and potential investors. He continues to provide traffic monitoring support to the CBBT District.

LBJ and NTE Express Lanes Refinancing

Client *LBJ Infrastructure Group / NTE Mobility Partners*
Year/Location *2018-25, TX*
Position Held *Project Director*

David has led the Steer team that first built managed lane forecasting models for two operational managed lane concessions and then used those models to prepare traffic and revenue forecasts that were used to support a refinancing of project debt. The NTE Express Lanes were refinanced first in December 2019 for a total amount of $1.2 billion. The LBJ Express Lanes were refinanced in September 2020 and accordingly David guided adjustments to the forecasts to account for COVID-19's impact, leading to an issuance of $600 million followed by a subsequent refinancing of TIFIA debt.

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Elizabeth River Crossing Sell-Side Advisor

Client *Elizabeth River Crossing LLC*
Year/Location *2020, VA*
Position Held *Project Director*

Steer was appointed as the Traffic and Technical advisor to the Elizabeth River Crossing in preparation for a sale of the concession. David served as the Project Director on the traffic assignment and led Steer's traffic and revenue study of the Elizabeth River Crossing's tolled tunnels. He presented our work to potential bidders, helping lead to a successful sale.

Pocahontas Parkway Sell-Side Traffic & Revenue Study

Client Confidential
Year/Location *2016-17, Richmond, VA*
Position Held *Project Director*

David led Steer's traffic and revenue study of of the Pocahontas Parkway. Our work was used to help market the toll facility, and David participated in discussions with potential bidders.

I-55 Managed Lanes T&R Study

Client *Illinois DOT*
Year/Location *2016-2018, Chicago, IL*
Position Held *Project Director*

David led Steer's traffic and revenue forecasting for the potential addition of managed lanes onto I-55 outside Chicago. As Project Director, David guided Steer's development of a forecasting model, reviewed the forecasts prepared, and helped advise IDOT on the project development.

Louisville-Southern Indiana Ohio River Bridges T&R Study

Client *Kentucky Transportation Cabinet*
Year/Location *2012-13, 2016, Louisville, KY, US*
Position Held *Project Manager / Project Director*

David served as the Project Manager of this investment grade traffic and revenue study. An extensive data collection effort was conducted to help establish the traffic and forecasting model that provided the traffic and revenue forecasts. These T&R forecasts were included in the OS of the bonds issued in December 2013. David has served as Project Director for on-going support.

Chesapeake Transportation System Investment Grade T&R Study

Client *City of Chesapeake*
Year/Location *2010-25, Chesapeake, VA, US*
Position Held *Project Manager / Project Director*

David led Steer's preparation of investment grade traffic and revenue forecasts for the Chesapeake Transportation System that includes the Chesapeake Expressway and Dominion Boulevard Veterans Bridge. Steer's T&R forecasts were included in the OS of the bonds issued in Fall 2012. Steer continues to provide annual support, reviewing the traffic and revenue performance and advising on toll rates.

Publications

- *Evaluation of Freeway Control Using a Microscopic Simulation Laboratory*. With M. Ben-Akiva, M. Hasan, M. Jha, and Q. Yang. Transportation Research Part C 11 (2003), pp. 29–50.
- *Evaluation of Lane Control Signal Design for Freeway Lane Closures*. With M. Ben-Akiva and M. Jha. ASCE Journal of Transportation (1999), pp. 495–501.
- A System-Wide Evaluation of a Traffic Control System Using Microscopic Simulation. Master's thesis, MIT, 1998.
- *Evaluation of Freeway Control Using MITSIM Microscopic Simulation Laboratory*. With M. Ben-Akiva, M. Hasan, M. Jha, and Q. Yang. DACCORD Workshop on Advanced Motorway Traffic Control, Lancaster University, UK, 1998.
- *Analysis of Traffic Video to Develop Driver Behavior Models for Microscopic Traffic Simulation*. With A.C. Chachich and M. Hasan. IEEE Conference on Intelligent Transportation Systems, Boston, Massachusetts, 1997.
- *Video Data Analysis for Driver Behavior Modeling*. With A.C. Chachich and M. Hasan. SPIE's International Symposium and Education Program on Intelligent Systems and Advanced Manufacturing, Pittsburgh, Pennsylvania, 1997.

Presentations

- IBTTA 2011 Transportation Finance and Policy Summit, Panel Member "*Traffic and Revenue Studies – New Realities, New Solutions?"*
- Virginia 2011 Freight Summit, Panel Member "*The Importance of Considering Freight in Transportation Policy, Planning, Prioritization and Investment*"
- IBTTA 2013 Annual Meeting, "*Seasonal Tolls: The Chesapeake Expressway Case Study*"
- Uber Elevate 2017 Summit, Urban VTOL Network Optimization and Demand Modeling Across Early Adopter Cities Session, "*Travel Demand Study of Uber Elevate Service*"
- ARTBA 2018 P3 Conference, Panel Member, P3 Emerging Leaders Session #1, "*Leveraging Technology Disruptions & Opportunities in the Transportation Space*"
- IBTTA 2019 Summit on Finance and Policy, Making the Transition from Road Financier to Mobility Service Provider, "*The Role of Toll Facilities in the Future of Mobility*"

Exhibit B

Final Report
December 2025

Dulles Greenway 2026 Rate Case Traffic & Revenue Study

TRIP II
Our ref: 23872708
Client ref:

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Final Report
December 2025

Dulles Greenway 2026 Rate Case Traffic & Revenue Study

Disclaimer

This Dulles Greenway Rate Case Support document (the "Report") was prepared by Steer ("Consultant") for the benefit of McGuireWoods LLP and Toll Road Investors Partnership II, L.P. ("TRIP II") (TRIP II, together with McGuireWoods, the "Client") solely in its capacity as Consultant for the toll rate and traffic analysis it performed for the Dulles Greenway (the "Project") pursuant to the engagement letter and related schedules (collectively, the "Agreement"), dated November 11, 2024.

This Report, information contained herein and any statements contained within, are all based upon information provided to the Consultant, and obtained from proprietary data purchased or confidential information provided by the Client, from publicly available information or sources, in the course of evaluations of the Project. The Consultant provides no assurance as to the accuracy of any such third-party information and bears no responsibility for the results of any actions taken on the basis of the third-party information contained in the Report, except to the extent that such actions result from the willful misconduct, recklessness, fraud or gross negligence of the Consultant.

Certain forward-looking statements are based on interpretations, assessments, and assumptions on and from available information at the time of writing. Actual events may differ from those assumed, and events are subject to change. Findings are time-sensitive and relevant only to current conditions and those forecasted at the time of writing. The Report speaks only as of the date of issuance and the Consultant undertakes no obligation to update the Report for any reason. Factors influencing the accuracy and completeness of the forward-looking statements may exist that are outside of the purview or control of the Consultant. The Consultant makes or provides no warranty, whether implied or otherwise, as to the reliability of the outcome of the forward-looking information presented, nor does it take any responsibility or bear any liability whatsoever as to the actions taken by others, including third parties, based upon the forward-looking statements made in the Report, except to the extent that such actions result from the willful misconduct, recklessness, fraud or gross negligence of the Consultant. The Report should be viewed as an assessment that is time-relevant, specifically referring to conditions at the time of review.

In particular, readers of this Report must note that the Consultant developed the relationships in the model to produce the forecasts for this Project based on data through June 2025 and earlier. During this period, the outbreak of the viral illness known as COVID-19 has spread throughout the world and has been defined by the World Health Organization as a pandemic. The COVID-19 outbreak has materially impacted global economic

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and political affairs, including significantly impacting all transportation industries. Toll road traffic in particular has been impacted, where vehicle volumes have fallen in response to quarantine, shelter in place and related measures that governments, including state and local governments in the United States, have imposed and we cannot rule out imposing in the future. Against this backdrop, the Consultant has made assumptions of a delayed economic recovery and decreased travel demand. However, it is important to note that the Consultant's post-COVID-19 analysis is only one view, and there continues to remain uncertainty as to the short-term, intermediate or prolonged effects of and responses to the COVID-19 pandemic on the Project.

All of these effects could impact the COVID-19-related aspects of this Report. While this Report was prepared in good faith, no assurance can be provided by the Consultant that the scenario and assumptions the Consultant has identified in such update will prove to be accurate.

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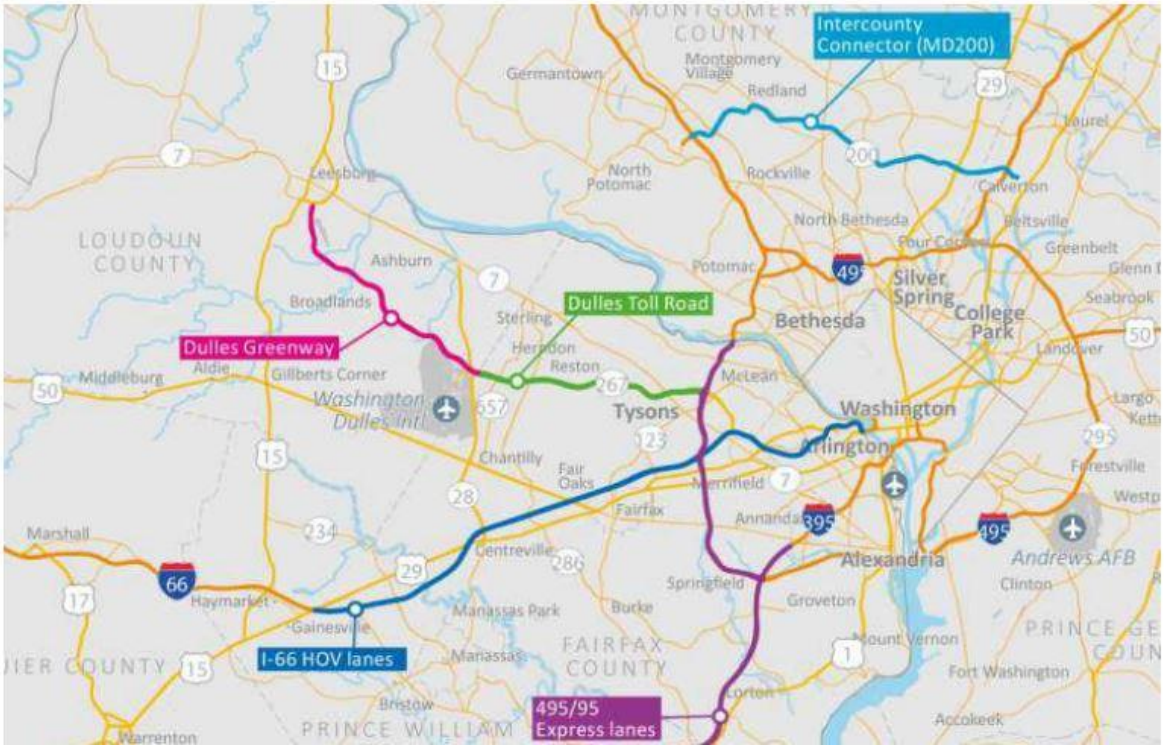
1 Introduction

Background

1.1 The Dulles Greenway (the "Greenway") is a 14-mile toll road located northwest of Washington DC in Northern Virginia. It is owned and operated by Toll Road Investors Partnership ("TRIP II"). It connects with the western terminus of the Dulles Toll Road ("DTR") on the east side and the Leesburg Bypass on the west side. The Greenway provides a tolled alternative to commuters and travelers from Loudoun County to various destinations including the Washington Dulles International Airport ("Dulles Airport"), and the Washington DC area. Figure 1.1 shows the Greenway and the surrounding area.

Figure 1.1: Map of the Greenway and the Surrounding Area



Source: Steer

1.2 The State Corporation Commission ("SCC") regulates the maximum tolls that can be charged on the Greenway under the Virginia Highway Corporation Act of 1988, which requires, among other things, that the tolls charged should be reasonable compared to the benefit obtained and should not materially discourage travelers from using the facility.

1.3 TRIP II requested SCC approval to increase peak and off-peak tolls for years 2020 through 2025 on the Greenway on December 20, 2019. The Commission approved only the requested off-peak tolls for years 2021 and 2022. TRIP II applied for a 2024 toll increase in 2023, which was denied by the Commission. TRIP II has engaged Steer to provide support for its application to increase tolls for 2026.

1.4 To conduct this study, Steer reviewed existing conditions and socioeconomic performance, built an investment grade travel demand model, and used it to produce forecasts to evaluate the impact of the proposed toll increases on Greenway traffic. It also quantified the benefits and costs of using the Greenway, and published all findings and conclusions in the Report.

1.5 Steer also participated in Working Group sessions that were established following the prior rate case proceedings. The Working Group included representatives from SCC staff, the Office of the Attorney General's Division of Consumer Counsel ("OAG"), Virginia Department of Transportation ("VDOT") and Loudoun County, and covered discussions on a number of topics relating to the Investment Grade Model, Material Discouragement and User Benefit Analysis. In the preparation of the analyses described in this Report, we considered the Working Group discussions and as appropriate, incorporated them into our work.

About Steer

1.6 Steer is one of the world's largest independent specialist transportation consultancies, with more than 400 professional staff and a worldwide client base. Steer's head office is in London and we have U.S. offices in Boston, Los Angeles, New York, Oakland, Pittsburgh, Sacramento, San Diego, San Juan, and Washington D.C. Steer is an employee-owned company that was founded in 1978. Our independence means that we offer truly unbiased and objective advice.

1.7 Steer is a world-recognized expert in the provision of investment grade traffic and revenue services. We ranked 1st in the Technical Advisors League Table (InfraNews) for Transport Infrastructure in 2024 by number of transactions successfully closed globally. Having worked on over 500 toll road projects around the world, Steer has developed a recognized specialty in the appraisal of toll-financed facilities, especially in the preparation of robust Investment Grade Traffic and Revenue Forecasts. In recent years, we have been involved in most of the major high profile P3 projects in the US. In Virginia, Steer has produced investment grade traffic and revenue studies to support the financing or sale of the following toll facilities:

- Chesapeake Bay-Bridge Tunnel,
- Chesapeake Transportation System,
- Elizabeth River Crossing,
- I-66 Outside the Beltway Express Lanes, and
- Pocahontas Parkway.

Report Structure

1.8 The Report is organized as follows:

- Chapter 1: Introduction.

- Chapter 2: Existing Conditions: summarizes the existing traffic conditions and non-tolled alternatives to the Greenway.
- Chapter 3: Socioeconomic Conditions: provides a review of the historical and forecasted socioeconomic conditions of the study area.
- Chapter 4: Network Modeling: describes our traffic forecasting methodology.
- Chapter 5: Traffic Forecast and Material Discouragement: presents traffic forecasts for 2024 and evaluates material discouragement for the proposed toll rate increase.
- Chapter 6: Benefits to Users: presents the methodology and results of the Benefit-Cost Analysis.

2 Existing Conditions

2.1 This chapter describes the existing conditions of the Greenway and its surrounding area. It presents the current and historical trends in traffic and congestion levels on the Greenway and the major alternatives.

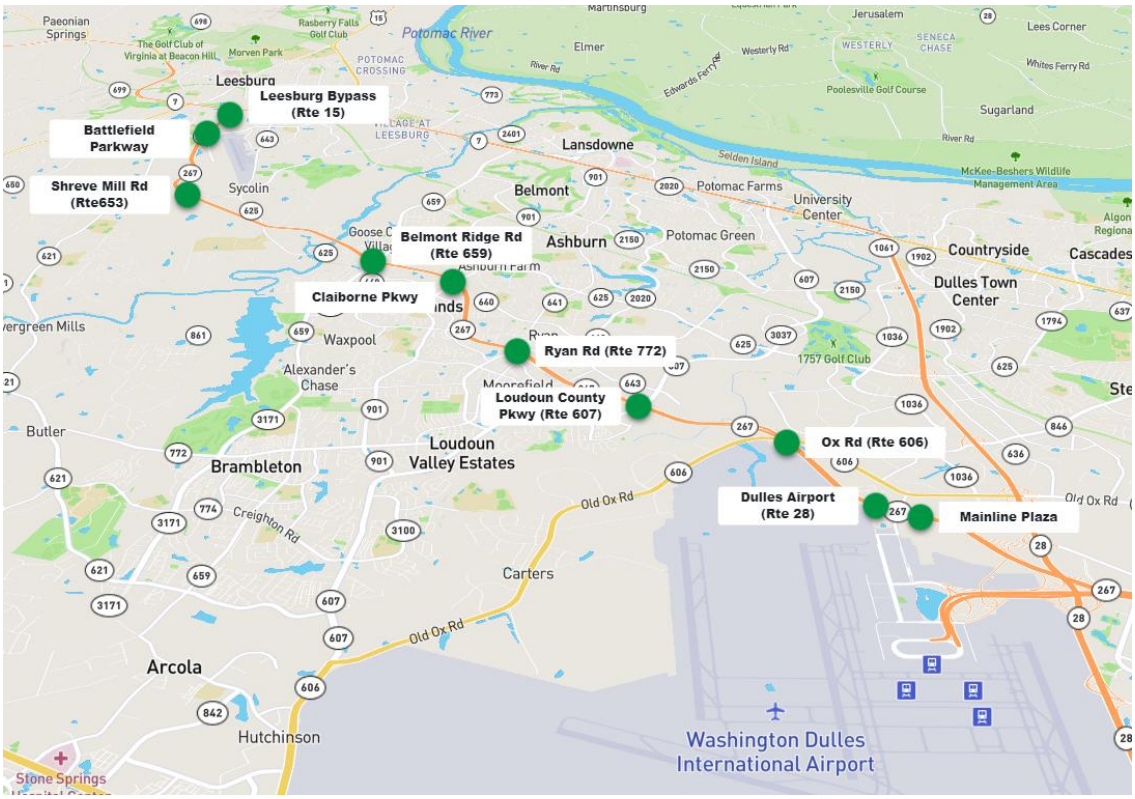
Asset Overview

Alignment

2.2 The Greenway is a major tolled East-West highway serving Fairfax and Loudoun County travelers. As previously shown in Figure 1.1, the Greenway connects the fast-growing residential neighborhoods in Loudoun County with employment centers in Reston, Tysons Corner, and Washington DC. At the east end, the Greenway connects to the DTR, Route 28, and Dulles Airport, while on the west end, the Greenway connects to the Leesburg Bypass and the Town of Leesburg.

2.3 The Greenway has 11 interchanges with 17 entry and exit points along its 14-mile length. Figure 2.1 shows the locations of entry and exits of the Greenway on a map.

Figure 2.1: Location of Greenway Entrances and Exits



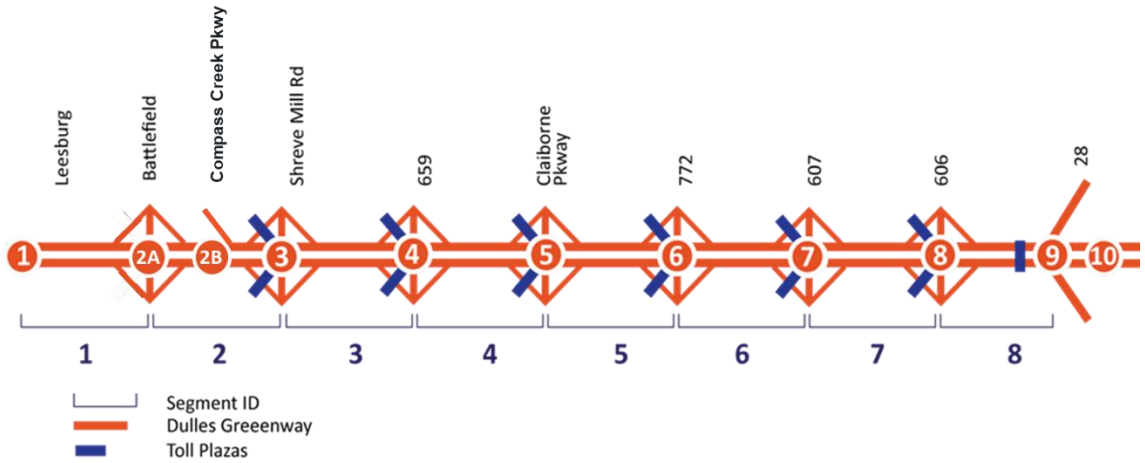
Source: Dulles Greenway Website (**https://www.dullesgreenway.com/toll-calculator/**)
Note: the Compass Creek Parkway is at a similar location as the Battlefield Parkway location shown on the map

Toll Collection

2.4 The Greenway toll collection system is designed to ensure that travelers are tolled only at one location (either an entrance or an exit) for their trip along the Greenway. In the eastbound direction only the exits are tolled, while in the westbound direction only the entrances are tolled. Tolling occurs in both directions at the Mainline Plaza, which connects the DTR to the Greenway, as this is the “exit” to eastbound traffic and the “entrance" to westbound traffic. Further, the interchanges at Compass Creek Parkway and Battlefield Parkway are not tolled as Compass Creek Parkway is only a westbound exit and Battlefield Parkway provides toll free access to the Greenway within the Town of Leesburg.

2.5 Figure 2.2 shows the schematic of the Greenway toll plazas, the entry/exit ramps and segments between ramps, and Table 2.1 provides the directional tolling details for each entrance/exit to the Greenway.

Figure 2.2: Greenway Entry and Exits Schematic with Toll Plaza Identification



Source: Steer

Table 2.1: Greenway Entrance and Exit Locations

Entry /Exit No	Location	Tolling Direction
1	James Monroe Highway, US 15 (West end)	No Toll
2A	Battlefield Parkway	No Toll
2B	Compass Creek Shopping Center	No Toll
3	Shreve Mill Road (VA 653)	Westbound Entry and Eastbound Exit
4	Belmont Ridge Road (SR 659)	Westbound Entry and Eastbound Exit
5	Claiborne Parkway (VA 909)	Westbound Entry and Eastbound Exit
6	Ryan Road (VA 772)	Westbound Entry and Eastbound Exit
7	Loudoun County Parkway (VA 607)	Westbound Entry and Eastbound Exit
8	Old Ox Road (VA 606)	Westbound Entry and Eastbound Exit
9	Sully Road (VA 28) for IAD (Dulles Airport)	Westbound Entry and Eastbound Exit
10	Mainline Plaza to DTR (East end)	Both Directions

Source: Steer presentation of Greenway information

2.6 Table 2.2 shows the current Greenway 2-axle vehicles E-ZPass peak and off-peak toll rates in 2025 by toll plaza. Vehicles pay tolls by transponder (SmartTag or E-ZPass) or credit card.

Table 2.2: 2025 Toll Rates – 2-Axle E-ZPass Westbound Entrance Ramps

ID	Ramps	Peak	Off-Peak
2A	Battlefield Pkwy	-	-
2B	Compass Creek Shopping Center	-	-
3	Shreve Mill	$4.10	$4.10
4	Route 659	$5.10	$4.55
5	Claiborne Pkwy	$5.10	$4.55
6	Route 772	$5.10	$4.55
7	Route 607	$5.80	$5.25
8	Route 606	$5.80	$5.25
9	Route 28	$5.80	$5.25
10	Main Plaza	$5.80	$5.25

Source: Steer presentation of Greenway information

2.7 Table 2.3 shows the time periods and direction of travel for which the peak period toll rates are applied for all tolling locations except at Shreve Mill Road, where the same toll rate is applied throughout the day.

Table 2.3: Peak Tolling Times and Direction

Time Period	Time Range	Direction of Travel
AM Peak	6:30 – 9:00 am	Eastbound
PM Peak	4:00 – 6:30 pm	Westbound

Source: Steer presentation of Greenway information

2.8 Larger vehicles pay higher tolls based on the number of axles. Specifically, a toll multiplier is applied to the 2-axle toll rate, these multipliers are shown in Table 2.4.[1]

Table 2.4: Toll Multiplier by Number of Axles

Number of Axles	Multiplier Applied to 2-Axle Toll Rate
3	2
4	2.5
5+	3

Source: Steer presentation of Greenway information

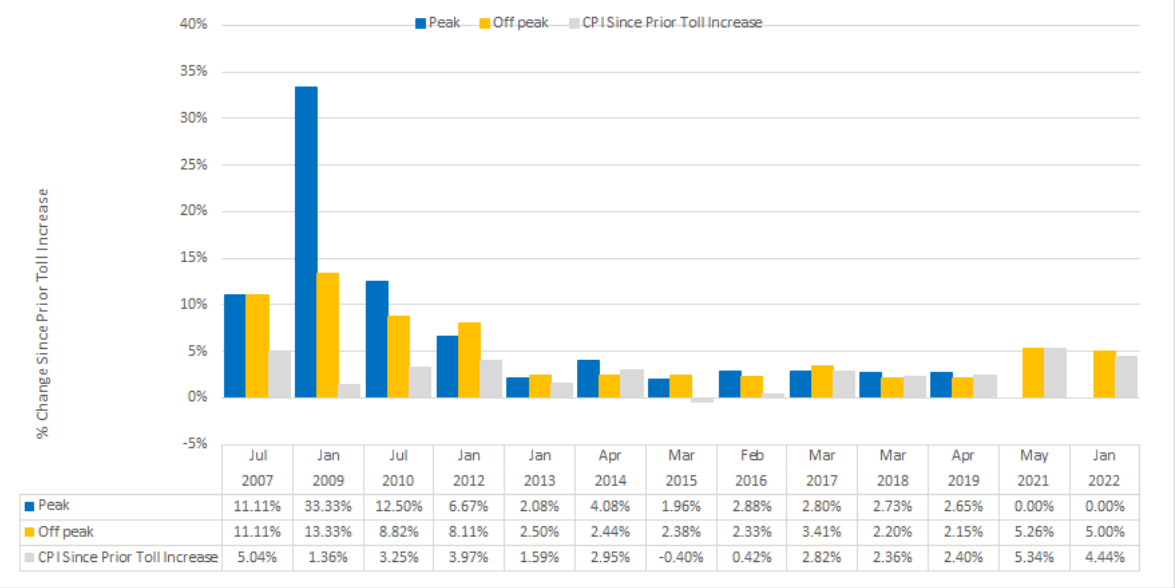
[1] Note that due to rounding of the implemented toll rate for 4-axle vehicles, the factors may not match exactly.

Trends

Historical Tolls

2.9 Figure 2.3 shows the historical toll increases since 2007, displaying the percentage changes in the average toll rates since the prior toll increase and the corresponding change in CPI since the prior toll increase. The nominal toll increases between 2007 and 2012 were above inflation, while from 2013 to 2020, toll increases were lower and generally in line with inflation. That trend has not continued more recently. Since 2020, there has only been increases in off-peak toll rates in 2021, and 2022. Additionally, since the last increase in January 2022, CPI has increased by another 15.5%. Overall, there have been 13 off-peak toll increases and 11 peak toll increases in the last 18 years.

Figure 2.3: Historical Toll Increases on the Greenway



	Jul 2007	Jan 2009	Jul 2010	Jan 2012	Jan 2013	Apr 2014	Mar 2015	Feb 2016	Mar 2017	Mar 2018	Apr 2019	May 2021	Jan 2022
Peak	11.11%	33.33%	12.50%	6.67%	2.08%	4.08%	1.96%	2.88%	2.80%	2.73%	2.65%	0.00%	0.00%
Off peak	11.11%	13.33%	8.82%	8.11%	2.50%	2.44%	2.38%	2.33%	3.41%	2.20%	2.15%	5.26%	5.00%
CPI Since Prior Toll Increase	5.04%	1.36%	3.25%	3.97%	1.59%	2.95%	-0.40%	0.42%	2.82%	2.36%	2.40%	5.34%	4.44%

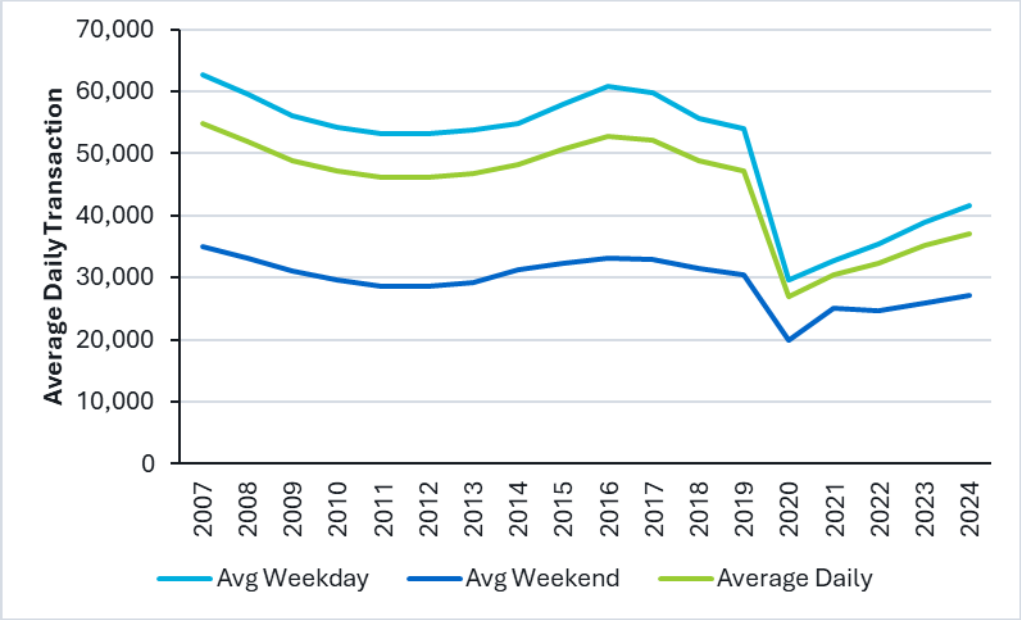
Source: Steer Analysis of Greenway Toll Data

Historical Transactions and Revenue

2.10 Figure 2.4 presents the transaction trends on the Greenway since 2007, showing that transactions have generally decreased since 2007. Between 2007 and 2024, the overall traffic levels have fallen with a compounded annual growth rate ("CAGR") of -2%. In total levels, traffic in 2024 is 32% lower than it had been in 2007.

2.11 While overall traffic has decreased during 2007-2022, there have been periods of growth. The traffic level experienced a period of growth between 2012 and 2016, before falling slightly from 2016 to 2018. Between 2016-2018, several local construction and network enhancement projects were completed. These include widening, grade separation and intersection improvements on Route 7, Route 28 and Waxpool Rd, which provide alternatives to the Greenway.

Figure 2.4 Historical Average Greenway Daily Transactions

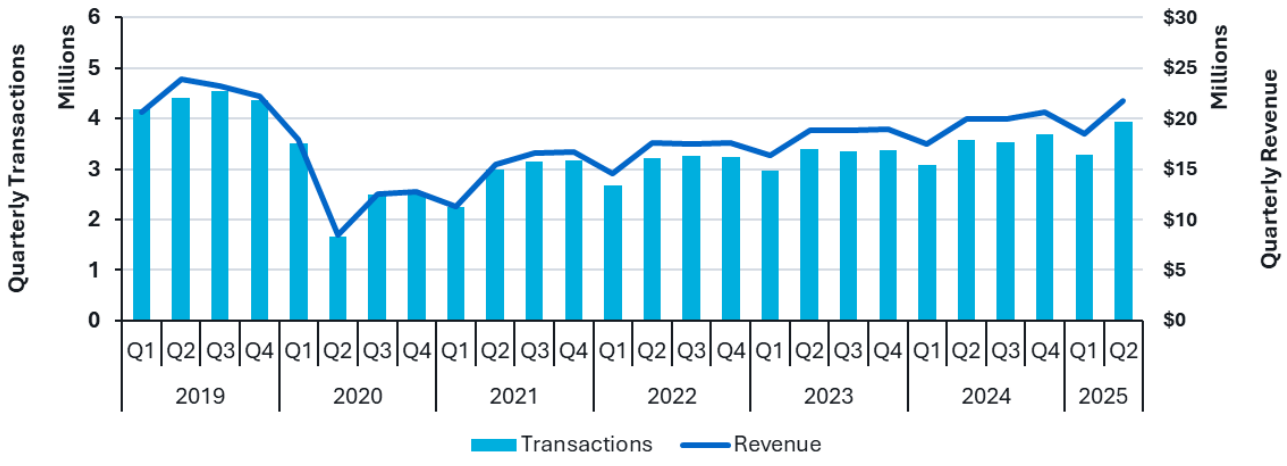


Source: Steer Analysis of Greenway Toll Data

Average Weekday Transactions by Time-of-Day 2019 vs. 2024

2.12 Considering the large traffic decrease in 2020, when traffic fell by 43% due to COVID-19, we further explored how traffic evolved between 2019 and 2024. Figure 2.5 shows that since the drop in 2020, the Greenway has experienced recovery and by the end of 2024, the average daily transactions on the Greenway had recovered to 78% of pre-COVID-19 levels. Figure 2.5 also shows the quarterly transaction and revenue growth on the Greenway since 2019. Revenue follows similar growth trends as the transactions because the growth in toll rates has been limited (as discussed in the previous section).

Figure 2.5: Historical Quarterly Transaction and Revenue



Source: Steer analysis of Greenway transaction data

Current Transactions and Revenue

2.13 In 2024, the Greenway had 13.9 million total transactions[2] and $78 million of total revenue.

2.14 Table 2.5 shows the average weekday transactions for the Greenway in 2024 by toll plazas. The table shows that more than 80% of Greenway traffic enters or exits the Greenway at the Mainline Plaza. The traffic that moves from the DTR to the Greenway at the Mainline Plaza is mostly long-distance trips. The traffic entering the Greenway from other entrances is mostly local traffic traveling shorter distances.

Table 2.5: Greenway 2024 Average Weekday Transactions

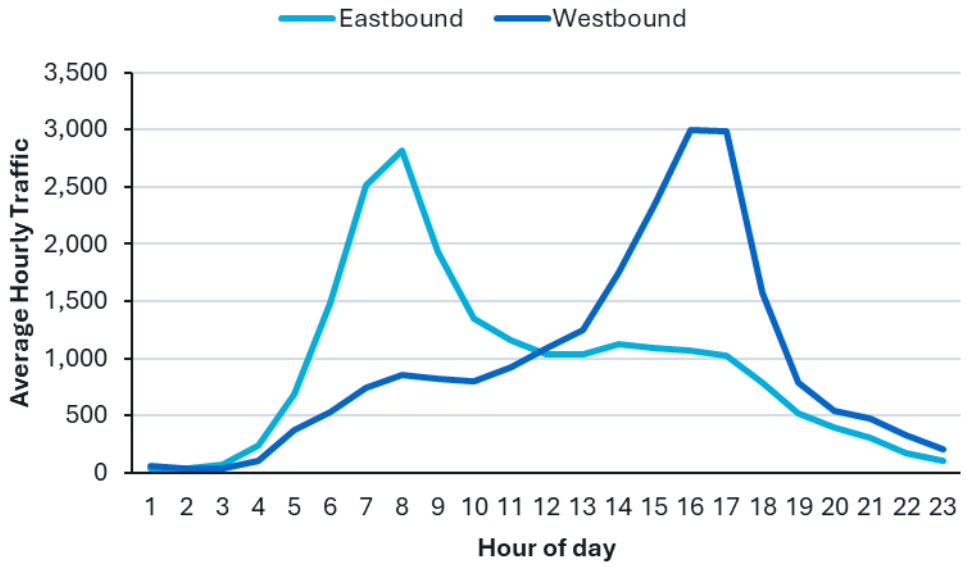
Location	Eastbound	Westbound	Total	% of Total Greenway Transactions
Mainline Plaza	17,718	17,702	35,420	83.3%
Old Ox Rd (Rte 606)	1,343	1,669	3,012	7.1%
Loudoun County Pkwy (Rte 607)	370	559	929	2.2%
Ryan Rd (Rte 772)	712	695	1,407	3.3%
Claiborne Pkwy (Rte 901)	373	384	757	1.8%
Belmont Ridge Rd (Rte 659)	348	490	838	2.0%
Shreve Mill Rd	82	93	176	0.4%
Total	**20,946**	**21,592**	**42,538**	100.0%

Source: Steer analysis of Greenway transaction data

2.15 The average weekday hourly profile of the Greenway shows very well-defined peaks coinciding with eastbound traffic in the AM peak period and westbound traffic in the PM peak period.

[2] This value includes the approximately 2% of transactions that are non-revenue. In addition to the 13.9 million transactions, there are approximately 3 million annual trips that utilize the Greenway within Leesburg using the west facing Battlefield Parkway ramps that do not appear as a transaction.

Figure 2.6: 2024 Weekday Traffic Profile on Greenway



Source: Steer analysis of Greenway transaction data

2.16 Autos form the bulk of traffic on the Greenway, with the overall truck percentage (which includes light, medium and heavy trucks) of transactions around 4%. The truck percentage varies by individual entrance to the Greenway as shown in Table 2.6.

Table 2.6: Truck % on the Greenway in 2024

Location	Eastbound	Westbound
Mainline Plaza	2.6%	2.6%
Old Ox Rd (Rt. 606)	8.6%	7.9%
Loudoun County Pkwy (Rt. 607)	3.8%	5.1%
Ryan Rd (Rt. 772)	2.1%	2.5%
Claiborne Pkwy (Rt. 901)	2.0%	2.1%
Belmont Ridge Rd (Rt 659)	2.6%	3.1%
Shreve Mill Rd	7.2%	6.1%
Total	3.0%	3.1%

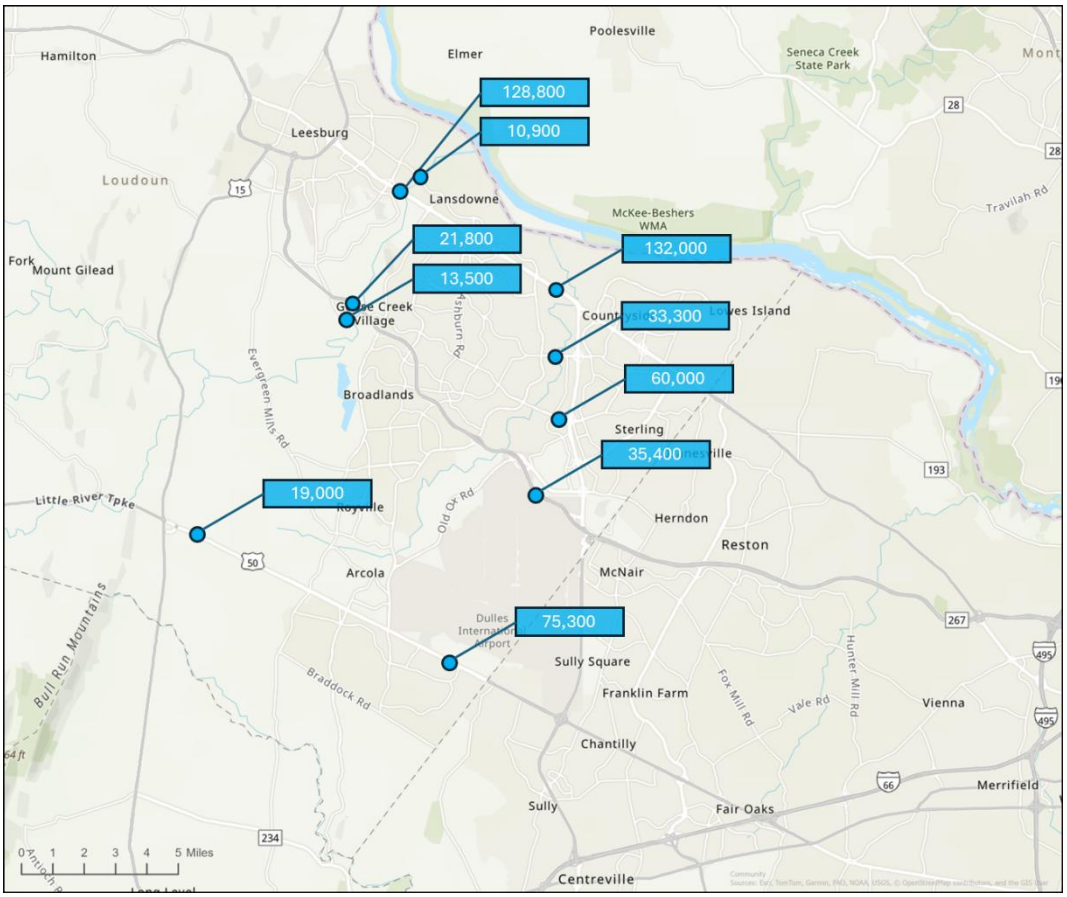
Source: Steer analysis of Greenway transaction data

Study Area

2.17 The Greenway study area consists of the Greenway, connecting roads to the Greenway, and alternative routes. Figure 2.7 shows the study area roads and their 2024 Average Weekday Daily Traffic ("AWDT") traffic levels.

2.18 During the Working Group discussions, it was agreed to expand the study area to extend west to Purcellville. Considering this agreement, for this study, we extended the network even further to include all of Loudoun County.

Figure 2.7: Study Area 2024 Average Weekday Daily Traffic Counts



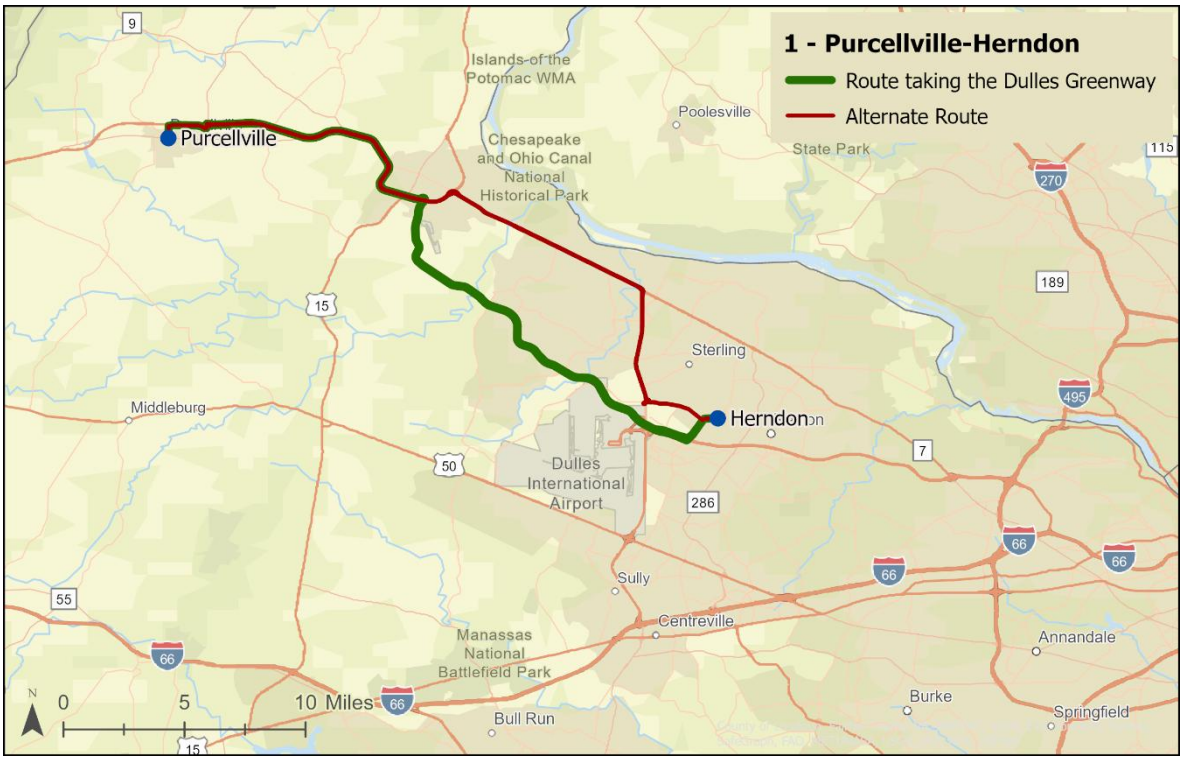
Source: Steer

Alternative Routes

2.19 As a facility with a fast travel speed, the Greenway provides both shorter travel times and greater travel time reliability to travelers. We obtained travel time data from TomTom, a big data provider that collects and processes anonymous information from millions of GPS-enabled devices, such as smartphones, in-dash navigation systems, and connected vehicles to develop comprehensive travel patterns and travel times data over the network. We analyzed the TomTom data in order to assess the average and 95th percentile travel times for using the Greenway and the next best alternative for three illustrative trips. Table 2.7, Table 2.8, and Table 2.9 provide the comparisons between the Greenway route and alternate routes' average and 95th percentile travel times for trips between Purcellville and Herndon (routes shown in Figure 2.8), Ashburn Farm and Herndon (routes shown in Figure 2.9), and Purcellville and Stony Hill (routes shown in Figure 2.10), respectively. The data shows the Greenway provides time savings for trips between Purcellville and Herndon, larger time

savings for trips between Ashburn Farm and Herndon, and even larger time savings for trips between Purcellville and Stony Hill.

Figure 2.8: Greenway and Alternate Routes between Purcellville and Herndon



Source: Steer

Table 2.7: Comparison of 2024 Travel Times between Purcellville and Herndon (Minutes)

Direction	Time Period	Average Travel Time				95th Percentile Travel Time		
		Greenway	Alt	Difference		Greenway	Alt	Difference
EB	AM Peak	38.1	40.9	-2.8		70.7	78.8	-8.0
EB	PM Peak	36.4	38.5	-2.1		56.7	60.9	-4.2
EB	Off-Peak	33.6	34.4	-0.7		50.4	50.4	0.0
WB	AM Peak	34.4	34.7	-0.3		51.3	51.3	-0.1
WB	PM Peak	41.0	44.4	-3.5		74.3	87.0	-12.8
WB	Off-Peak	34.8	35.3	-0.5		52.6	53.4	-0.8

Source: Steer analysis of TomTom data

Figure 2.9: Greenway and Alternate Routes between Ashburn Farm and Herndon

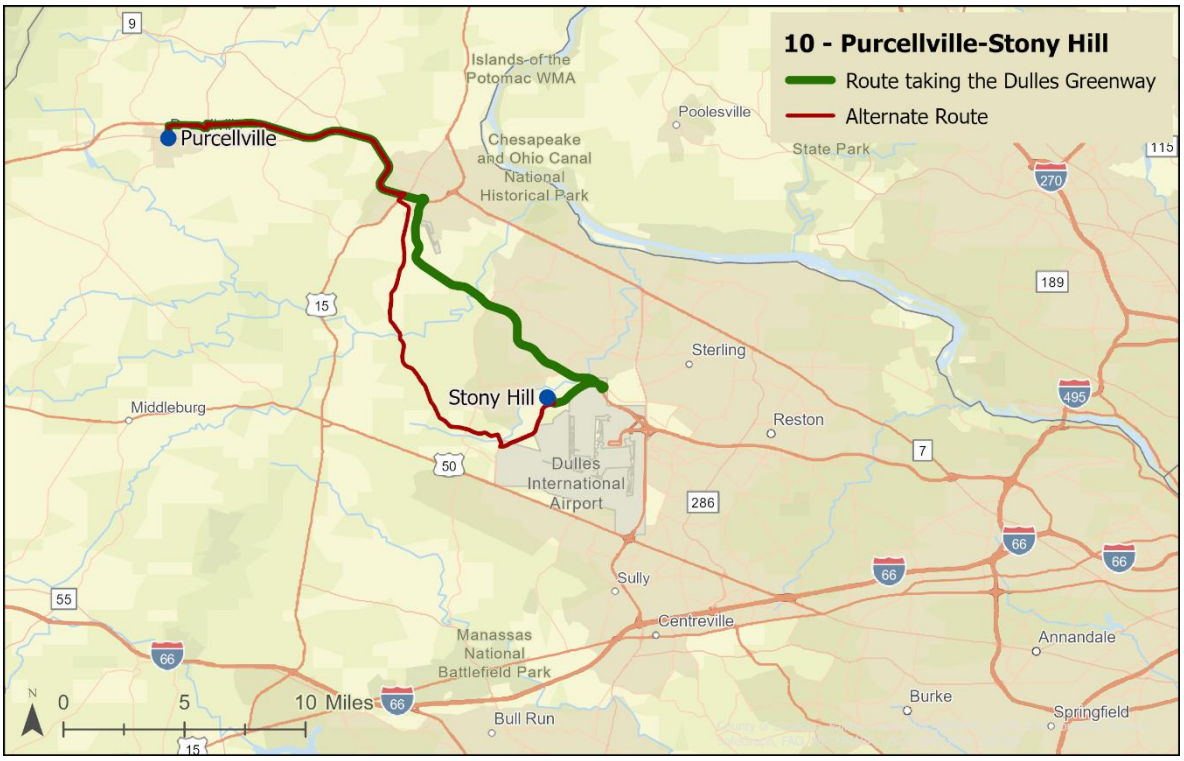
Source: Steer

Table 2.8: Comparison of 2024 Travel Times between Ashburn Farm and Herndon (Minutes)

Direction	Time Period	Average Travel Time				95th Percentile Travel Time		
		Greenway	Alt	Difference		Greenway	Alt	Difference
EB	AM Peak	14.8	18.4	-3.6		24.8	37.4	-12.6
EB	PM Peak	16.1	22.7	-6.6		27.6	48.0	-20.4
EB	Off-Peak	15.0	18.3	-3.3		24.9	35.3	-10.4
WB	AM Peak	14.7	19.1	-4.4		24.4	38.4	-14.0
WB	PM Peak	15.4	21.1	-5.7		26.0	45.0	-19.0
WB	Off-Peak	14.5	17.7	-3.2		23.7	33.8	-10.1

Source: Steer analysis of TomTom data

Figure 2.10: Greenway and Alternate Routes between Purcellville and Stony Hill



Source: Steer

Table 2.9: Comparison of 2024 Travel Times between Purcellville and Stony Hill (Minutes)

Direction	Time Period	Average Travel Time			95th Percentile Travel Time		
		Greenway	Alt	Difference	Greenway	Alt	Difference
EB	AM Peak	29.9	43.5	-13.6	55.7	85.6	-29.9
EB	PM Peak	27.1	42.2	-15.1	39.1	72.9	-33.8
EB	Off-Peak	25.6	38.1	-12.5	35.7	61.3	-25.6
WB	AM Peak	29.8	38.1	-8.3	42.7	60.8	-18.1
WB	PM Peak	35.6	43.4	-7.8	64.5	80.9	-16.4
WB	Off-Peak	29.9	37.0	-7.1	43.7	57.3	-13.6

Source: Steer analysis of TomTom data

Rail Alternative

2.20 In addition to the highway alternatives, the Silver Line Metrorail offers a potential transit alternative for some trips. The Silver Line Metro line extension opened in 2022 and provides a direct transit service between Washington D.C. and Loudoun County. The Silver Line thus can be considered an alternative to the Greenway for long-distance commuters between

Loudoun County and Washington D.C., Tysons Corner, and Reston but since the Metrorail has its last stop in Ashburn in Loudoun County, it is not a feasible alternative to commuters for Leesburg and locations further west. To provide the scale of this potential alternative, the total Silver Line average weekday ridership for the stations including and west of Wiehle-Reston East Station[3] has increased around 5,000 between 2019 and 2025[4] which represents less than 3% of the daily highway traffic on parallel roads.[5]

[3] By considering the Wiehle-Reston East Station, this allows for the shifting of trips that previously used Wiehle-Reston East Station to stations that opened with the extension.

[4] Based on analysis of ridership statistics provided at https://www.wmata.com/initiatives/ridership-portal/Metrorail-Ridership-Summary.cfm

[5] This highway traffic level is presented later in the report in Table 4.13.

3 Socioeconomic Conditions

3.1 In this chapter, we assess the socioeconomic conditions of the area around the Greenway. We first review the trends in key socioeconomic variables, and then we consider the future growth outlook.

Trends in Socioeconomic Variables

3.2 This section provides a background on socioeconomic variables that impact Greenway traffic levels. We present some of the recent trends in population, employment, Gross Domestic Product ("GDP") per capita and real income per capita in Loudoun County, Fairfax County, Virginia, and the United States. The historical data is derived directly from official sources, as noted accordingly.

Population

3.3 In general, traffic growth is driven by population growth. Higher levels of households and population have increased the number of vehicles on the road as the average vehicle occupancy rate has remained relatively stable.[6] Furthermore, the number of vehicles per household has remained relatively constant as well, which further shows that higher population has led to increased traffic from more vehicles on the road.

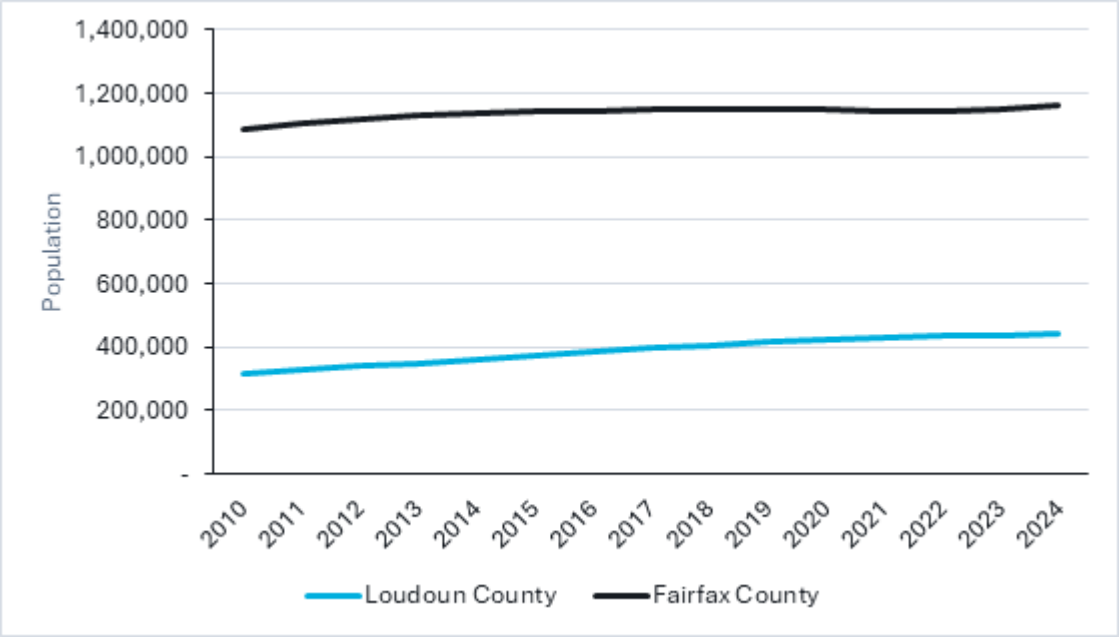
3.4 When considering the contribution of population growth to the Greenway's peak period-peak direction traffic, Loudoun County is most important as many of those peak trips originate in Loudoun County. Loudoun County has been one of the fastest growing counties in Virginia. From 2010 to 2024, Loudoun County recorded a population CAGR of 2.5%, which was over three and a half times Virginia's growth rate and that for the entire U.S. As seen in Figure 3.1, Loudoun County's population stood at 443,380 in 2024, which was roughly 5% of Virginia's population. Since 2010, Loudoun County has gained annually on average about 9,000 residents. This follows periods of strong growth in the 1990s and early 2000s. The population growth is illustrated by large housing developments that are located near the Greenway.

3.5 Neighboring Fairfax County, which is a larger and more built out area, has experienced slower growth than Loudoun County, especially in recent years. In fact, Fairfax County was estimated to have lost around 10,000 residents during the COVID years of 2020-2022, before returning to growth in 2023. This has resulted in a population CAGR of only 0.5% since 2010, which was below the growth rates of Virginia (0.7%) and the US (0.7%). In 2024, the

[6] This is confirmed by the 2008 and 2018 Household Travel Surveys prepared by the National Capital Region Transportation Planning Board.

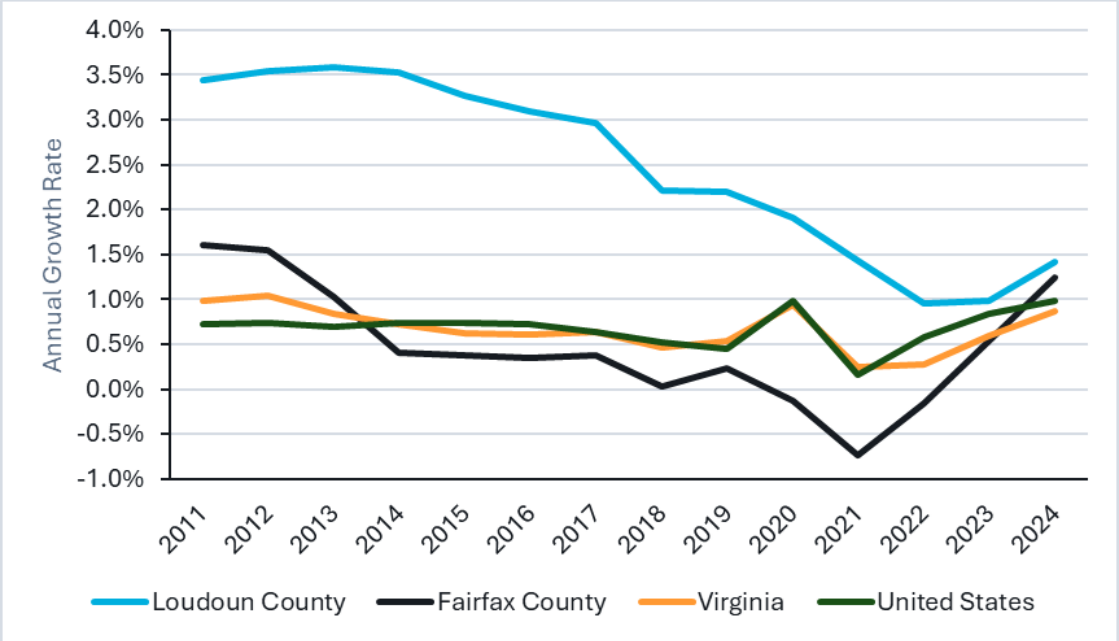
population of Fairfax County was 1,160,925, which was over 13% of Virginia's population. Figure 3.2 displays the year-over-year population growth rates of the two neighboring counties, along with the growth rates for Virginia and the U.S.

Figure 3.1: Population Growth Trend



Source: U.S. Census Bureau

Figure 3.2: Population Growth Rates



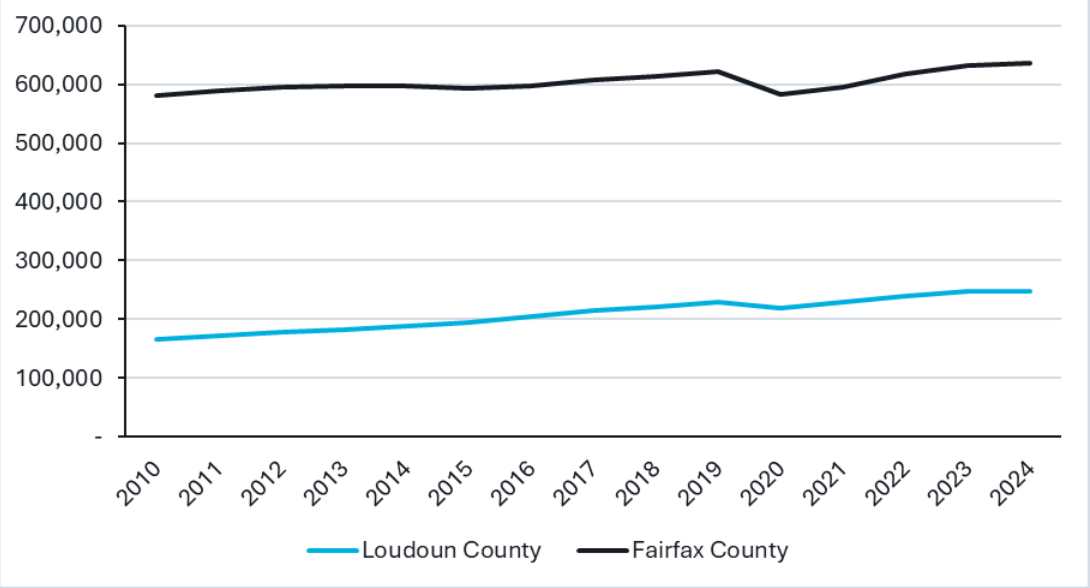
Source: U.S. Census Bureau

Employment

3.6 Much like for population, Loudoun County has enjoyed the high employment growth. From 2010 to 2024, Loudoun County posted an employment CAGR of 2.9%, which was nearly three times Virginia's growth rate and over two times the growth rate of the U.S. As seen in Figure 3.3, Loudoun County's employment was 248,477 in 2024, which was about 5% of Virginia's employment. Since 2010, the county has gained annually an average of about 5,800 jobs. Recently, Loudoun County's employment/population ratio has been improving, reaching roughly 0.56 in 2024, growing beyond its pre-pandemic value of 0.55. The employment/population ratio is a metric that is useful to understand the health of the labor market, with higher values indicating a greater portion of the population are employed.

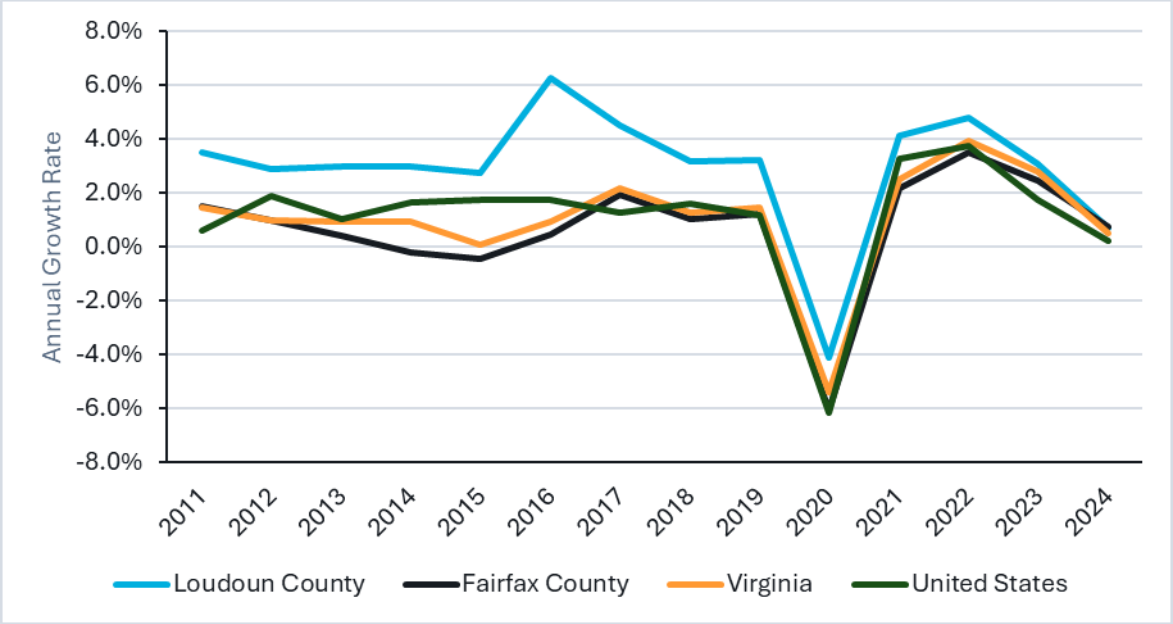
3.7 When considering the importance of employment on the Greenway's peak period-peak direction traffic, Fairfax County is very important as many of those peak trips are destined to jobs in Fairfax County. In Fairfax County, recent employment growth has been performing better than its population growth, indicating relative labor market improvements. This has led to its employment/population ratio reaching 0.55 in 2024, which was above its pre-pandemic level of 0.54. Despite its recent improvements, Fairfax County has had relatively modest growth in prior years, thus resulting in a CAGR of just 0.7% since 2010. In 2024, employment in Fairfax County reached 636,719, which represented over 14% of Virginia's employment. Figure 3.4 shows the employment growth rates of the two counties, along with the growth rates for Virginia and the US.

Figure 3.3: Employment Growth Trend



Source: U.S. Bureau of Labor Statistics

Figure 3.4: Employment Growth Rates



Source: U.S. Bureau of Labor Statistics

Real GDP Per Capita

3.8 GDP captures the total income generated by economic activity in a region. Relating it to the region's population gives GDP per capita, which represents economic activity generated per person. Generally, it is a standard measure of the region's average standard of living which influences residents' willingness to pay for goods and services. Specifically, a higher GDP per capita implies a higher value of travel time savings, which is associated with a higher willingness to pay tolls. Adjusting for inflation, real GDP per capita shows the real economic value generated per person in a region, which is generally used to compare economic activity across regions and time.

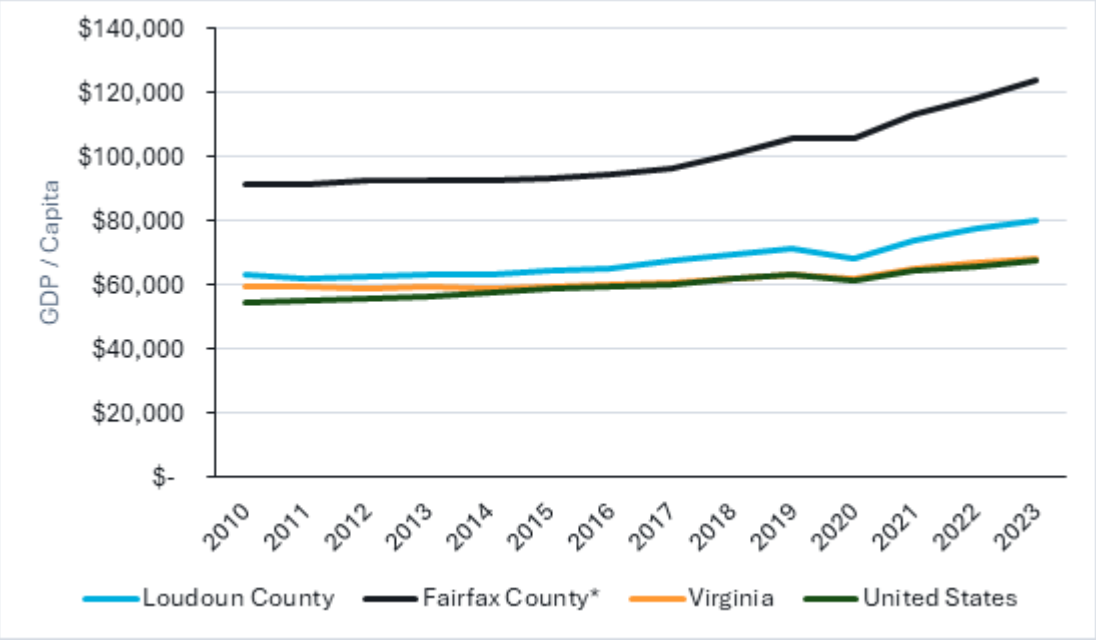
3.9 Loudoun County's real GDP per capita was $80,359 in 2023 (in chained 2017$), which was 17% higher than in Virginia and 19% higher than for the total U.S. From 2010 to 2023, Loudoun County recorded a real GDP per capita CAGR of 1.9%, which much greater than Virginia's growth rate of 1.1%, but more similar to the growth rate of the US of 1.7%.

3.10 Real GDP data for Fairfax County is available as a group that also includes the small towns of Fairfax City, Virginia and Falls Church, Virginia. To be consistent with real GDP, the same group's total population was used in calculating the GDP per capita. The real GDP per capita in the Fairfax County group was $123,627 in 2023, which was 81% higher than in Virginia and 84% higher than for the U.S. This is the result of a real GDP per capita CAGR of 2.4% since 2010, double that of Virginia, and almost one and a half times the growth rate across the U.S. Figure 3.5 shows the relative levels and movements of real GDP per capita among the regions.

3.11 Following a general positive trend in real GDP per capita growth, the pandemic led to negative growth rates across the region, as seen in Figure 3.6. Notably, Loudoun County's real GDP per capita fell significantly by 4.5% in 2020, while Fairfax County's fell by only 0.04%. The recovery growth rate is notably faster for both Loudoun and Fairfax County, recording around 4.5% growth rate in real GDP per capita, as opposed to 2.4% for Virginia and 2.0% for the total U.S.

3.12 The available population and employment data for Loudoun County indicates that GDP per capita grew in 2024, as GDP growth is driven by employment growth, which was 4.8% in 2024, much higher than the population growth of 1.4%. This follows 2023 when employment increased 4.6%, while population rose 1.0%, which led to GDP per capita increasing by 4.0%.

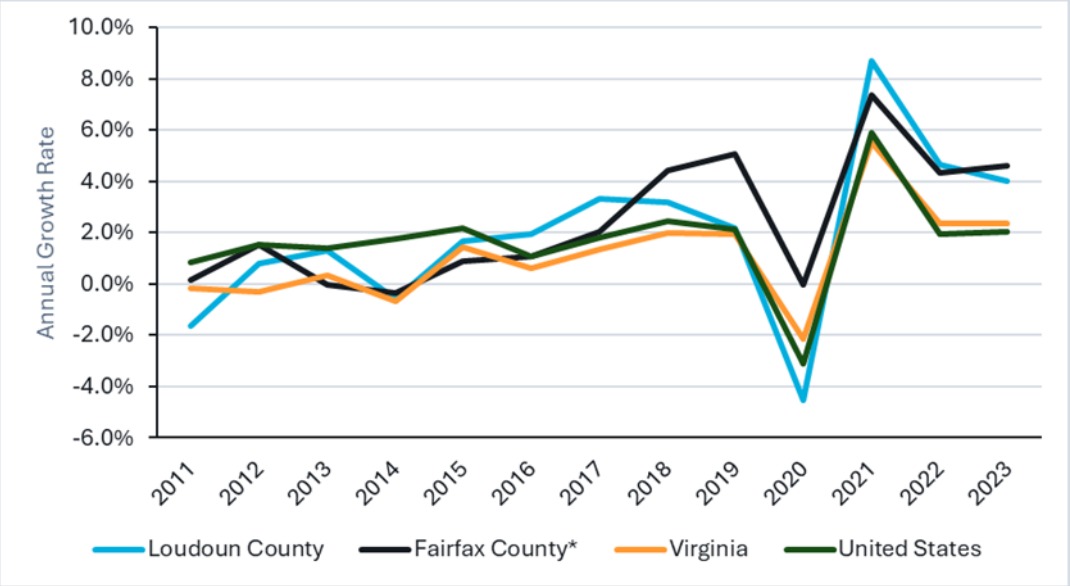
Figure 3.5: Real GDP Per Capita Growth Trend (Chained 2017$)



Note: Fairfax County* includes Fairfax County and the towns of Fairfax City and Falls Church.

Source: U.S. Census Bureau; U.S. Bureau of Economic Analysis

Figure 3.6: Real GDP Per Capita Growth Rates (Chained 2017$)



Source: U.S. Census Bureau; U.S. Bureau of Economic Analysis
Note: Fairfax County* includes Fairfax County and the towns of Fairfax City and Falls Church.

Household Income

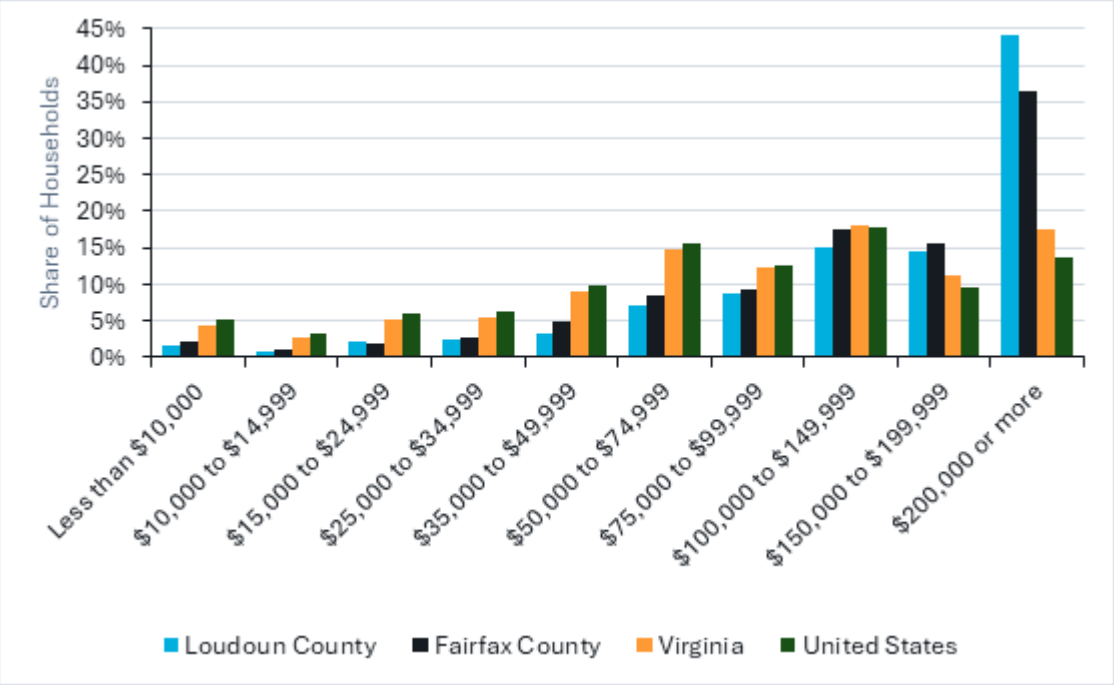
3.13 In addition to economic activity generated per person that is captured by GDP per capita, we can also look at income and benefits received by households to further analyze standard of living and willingness to pay. Figure 3.7 shows the distribution of households by each category of income and benefits received in 2024.

3.14 Of the four regions in 2024, Loudoun County had the largest share of households in the two highest earnings categories. It also had the largest median household income at $177,567, which is above Fairfax County ($154,545), and significantly above Virginia ($92,090), and the U.S. ($81,604). Loudoun County's average household income was $208,700, again higher than in Fairfax County ($195,198), Virginia ($127,363), and the US ($114,296).

3.15 The distribution of household incomes, along with the median and average household income, shows that the willingness to pay in Loudoun County should be relatively strong. This also points to a high value of travel time savings and reliability.

3.16 Note that Fairfax County had a higher GDP per capita than Loudoun County, while Loudoun County had a higher income per household. Aside from the fact that the former measure is per person, while the latter measure is per household, the difference in relative county levels is largely due to the former measure indicating income that is locally produced, while the latter measure is capturing income that is locally received. Given Fairfax County's higher GDP per capita and lower household income, it would imply that income produced in Fairfax County is not received by local households as much as it is in Loudoun County. This is strongly suggestive of Loudoun County having many "bedroom communities" where most residents commute to Fairfax County for work.

Figure 3.7: Distribution of Households by Income and Benefits (2024$)



Source: U.S. Census Bureau, 2024 ACS 1-Year Estimates Data Profiles

Future Outlook

MWCOG's Population and Employment Forecasts

3.17 The Metropolitan Washington Council of Governments ("MWCOG") is the official planning organization for the Washington D.C. metro area. MWCOG produces population and employment forecasts that are used as part of the transportation planning process. The forecasts are developed in 5-year intervals, with the key interval for 2026 analysis being between 2025 and 2030. Table 3.1 presents the latest MWCOG forecasts (Round 10.0) population and employment growth rates from 2025 to 2030 and compares them against the observed growth rates from 2010 to 2024. For Loudoun County, MWCOG is forecasting that the population growth will slow a bit, from the 2.5% annual growth recently observed to 1.6% per year, with employment decreasing as well, from 2.9% to 1.5% per year. However for Fairfax County, MWCOG is forecasting population growth to rise slightly, from 0.5% to 0.7% per year, and employment growth to increase much faster, from 0.7% to 1.7% per year.

3.18 As discussed in the next chapter, we used these MWCOG population and employment forecasts in our network modeling.

Table 3.1: Population and Employment Forecasts for Loudoun and Fairfax Counties

	Observed 2010-2024 CAGR	Forecasted 2025-2030CAGR
Loudoun County Population	2.5%	1.6%
Fairfax County Population	0.5%	0.8%
Loudoun County Employment	2.9%	1.5%
Fairfax County Employment	0.7%	1.7%

Note: Fairfax County* includes Fairfax County and the towns of Fairfax City and Falls Church.

Source: U.S. Census Bureau, U.S. Bureau of Labor Statistics, MWCOG

4 Investment Grade Network Modeling

Overview

4.1 The regional travel demand model developed by MWCOG is the official model used for planning studies in the Washington Metropolitan Area. The MWCOG model is regional in nature and is not well calibrated to every road and thus may not be well-suited for analysis of toll roads, hence Steer developed an in-house travel demand model (the "Steer Model") focusing on the Greenway and surrounding areas. To test impacts of planned network and future improvements and to use elements for the development of the Steer Model, Steer obtained version 2.4.6 of the MWCOG model (Gen2/Ver. 2.4.6 Travel Model – released July 2023 and deemed "ready for production use" by MWCOG as an update and improvement to the version 2.4), with the Round 10 Land Use Data (approved by the MWCOG board on June 14, 2023) which includes the MWCOG population and employment forecasts which we had previously discussed in Chapter 3. We used information from the MWCOG model and 2024 observed baseline conditions to develop the Steer Model. We used the Steer Model to determine the traffic impact of the proposed toll rate increase on the Greenway. This chapter provides background on the Steer Model and a description of how we updated it for this study.

Approach

4.2 Per the requirements of Va. Code § 56-542, toll rates must be validated by "an investment-grade travel demand model that takes population growth into consideration." Relative to a planning level model, an investment grade model can be described as one that uses project and corridor specific data to support the development and calibration of a robust travel demand model that accurately forecasts conditions in the project corridor and that is suitable to produce forecasts that are reliable to form the basis of financial investments. We developed the Steer Model as an investment grade model. The Steer Model uses a detailed network model of the study area along with a capture model to estimate the change in toll traffic resulting from changes in toll rates. The advantages of this network model and capture model approach include:

- High level of detail – small zones support representation of local routing and willingness to pay decisions.
- Representation of congestion (through link level calculations) in the routing and capture decisions.
- Representation of future network projects allows their impacts to be incorporated into future forecasts.
- Incorporation of a separate capture model. The capture model is calibrated to observed capture levels.

Model Development

Structure

4.3 We developed the Steer Model using the Cube/Voyager software platform. The key components of the model were adapted from the MWCOG travel demand model. The MWCOG model is a classic 4-step modeling system that includes: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) traffic assignment. The model has over 3,700 traffic analysis zones ("TAZs"), representing geographical areas from which trips originate or are attracted to and almost 50,000 links representing segments of the highway network.

4.4 The MWCOG model uses four time periods (AM, Midday, PM, and Night), which we further divided for the Steer Model to include AM shoulder peak and PM shoulder peak periods. The MWCOG model has five user classes; we have split the truck user class into two, resulting in six user classes in the Steer Model.

4.5 Table 4.1 summarizes the key trip characteristics of the Steer Model system.

Table 4.1: Steer Model Trip Characteristics

Model Trip Characteristic	Details
User Classes	Auto SOV Auto HOV2 Auto HOV3_ Auto Airport Passengers Commercial Vehicles and Light Trucks (2-axle) Heavy Truck (3+ axle)
Time Periods	AM Peak: 6:30 - 9:00 AM AM Shoulder: 9:00 - 10:00 AM Midday: 10:00 AM - 3:00 PM PM Shoulder: 3:00 - 4:00 PM & 6:30 - 8:00 PM PM Peak: 4:00 - 6:30 PM Night: 8:00 PM - 6:30 AM

Zoning for Trip Matrices

4.6 We based the zoning system for the Steer Model on the MWCOG model zones. Specifically, we extracted a subarea from the MWCOG model to focus on the study area. We selected an area that balanced reducing the coverage to reduce the network model "noise"[7] with ensuring inclusion of the western coverage as agreed during the Working Group meetings and the TAZs that generate the majority of in-scope trips. Accordingly, we selected an area that

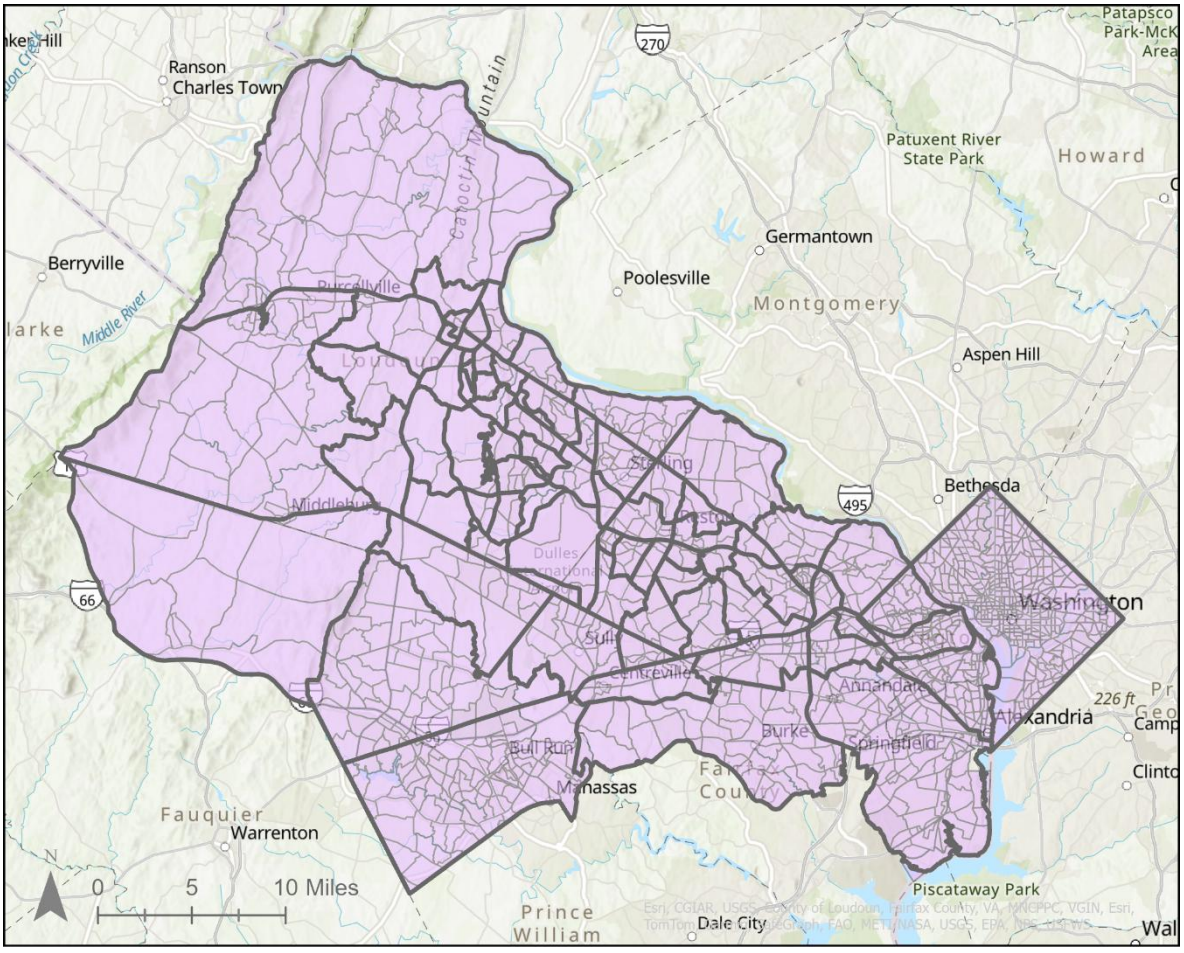
[7] Because large Metropolitan Planning Organization travel demand models, like the MWCOG model with over 50,000 highway links, cover such large areas, they can produce forecasts that are stable when considered at the regional level (for example considering total vehicle miles traveled), but can see relatively large unexplained changes in forecasts in specific areas; this is generally referred to as model "noise."

includes all of Loudoun County and the area to the east including Tysons Corner. The study area comprises:

- 689 internal zones – following MWCOG zone boundaries.
- 80 external zones –zones capturing trips that enter into the study area from surrounding areas and from further away on major highways.

4.7 Figure 4.1displays the Steer Model zone system.

Figure 4.1: TAZs Included in the Steer Model



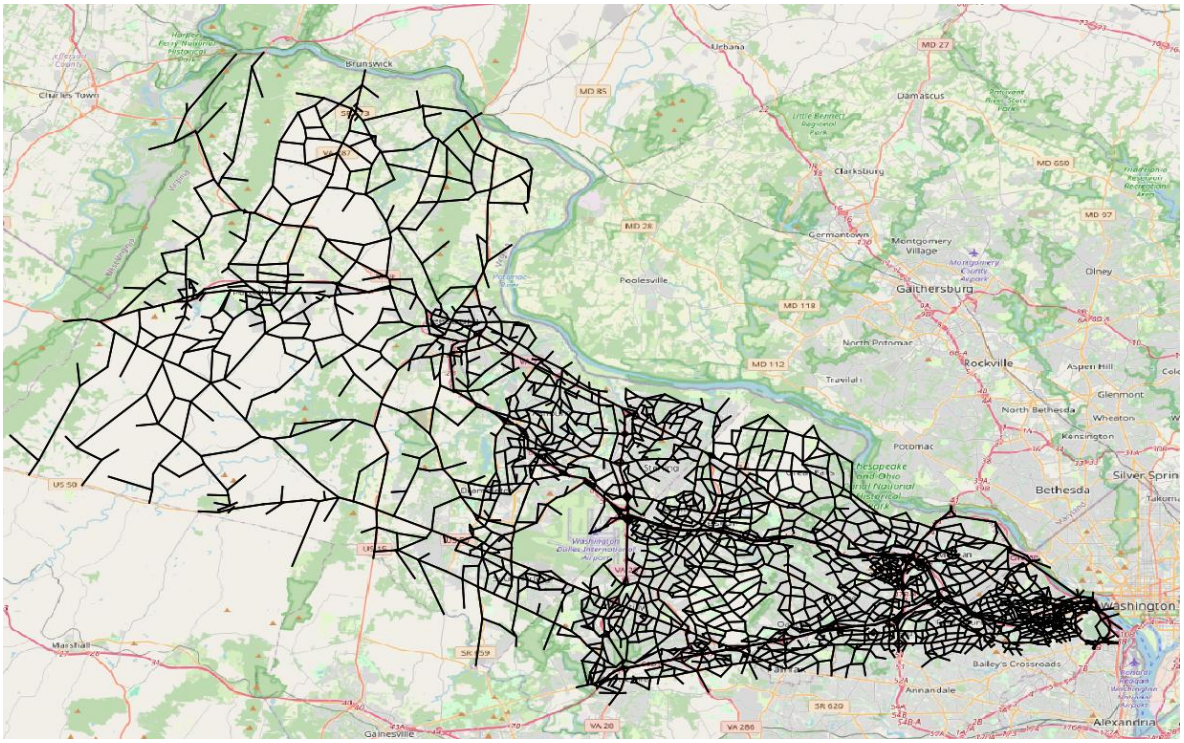
Source: Steer

Highway Network

4.8 Consistent with the zone system described above, we used a subarea of the MWCOG model network as the basis of the Steer Model highway network. We performed a detailed review to ensure the number of lanes, lane capacity, ramps, and toll plazas along the Greenway and DTR were accurately modeled. Links at the interchanges along the Greenway and DTR were recoded to better represent ramps at complex junctions, giving a clearer understanding of all possible movements.

4.9 During this work we reviewed the major competing roads (such as Route 7) and the wider network in general. Figure 4.2 shows the network coverage of our model.

Figure 4.2: Highway Network Coverage in the Steer Model



Source: Steer

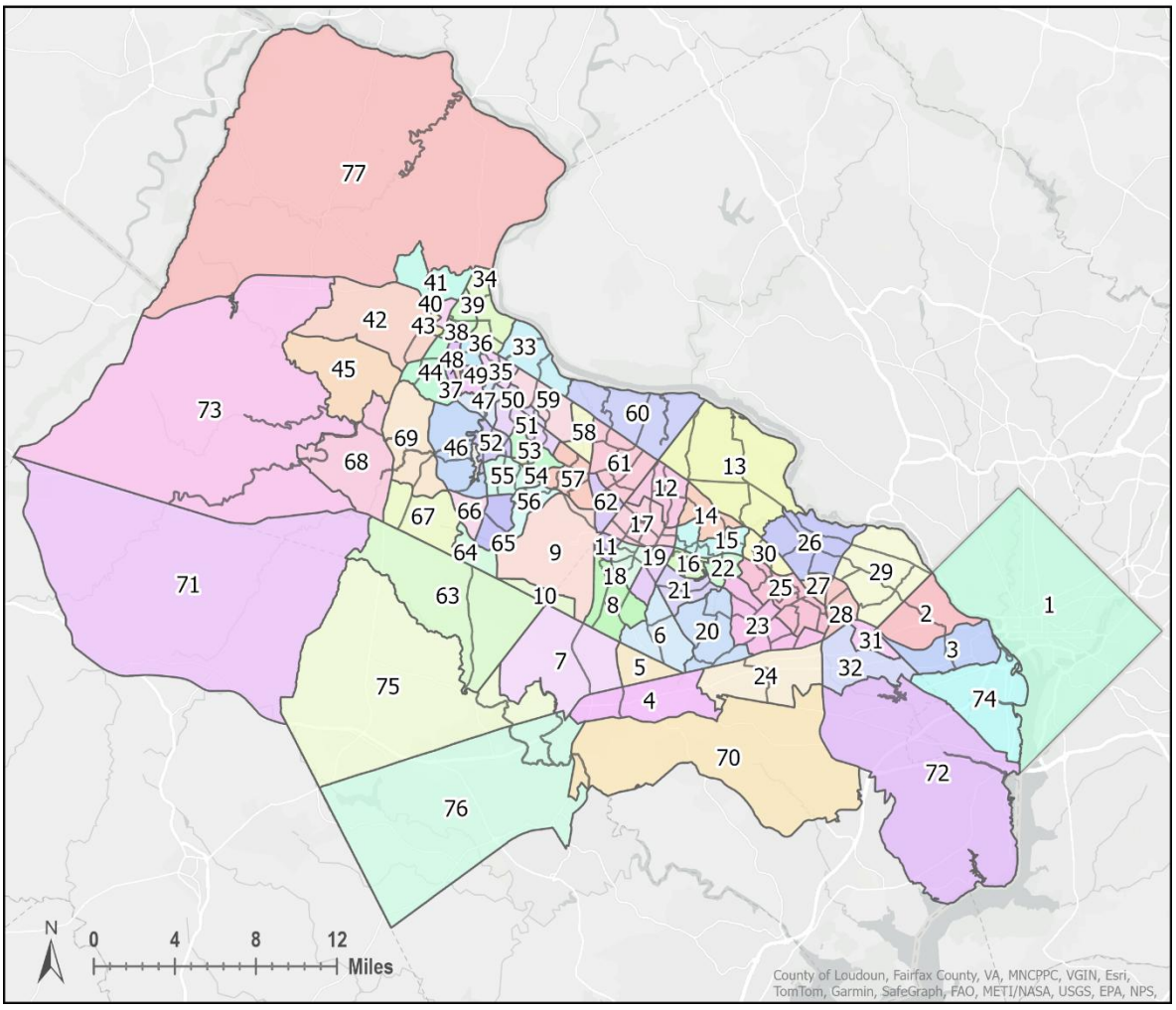
Capture Model

4.10 Steer developed a capture model to forecast capture rates on the Greenway relative to its alternatives. In transportation forecasting, capture models are typically established based on 1) travelers' stated preferences collected through travel surveys, 2) travelers' revealed behaviors observed through actual travel levels and conditions, or 3) stated or revealed behaviors set in models for other locations. Between options 1 and 2, option 2 using travelers' actual revealed behaviors is the preferred approach as this reflects how travelers actually behave instead of how they say they would behave and it usually covers a larger sample than available from a survey. For the case of the Greenway, there is the revealed behaviors so we could use option 2 to estimate the capture model.

4.11 We developed the capture model as a logistic regression (logit), which is a statistically robust and prevalent technique used to model probabilities, or in this context, capture rates for the toll facilities. We established the capture model using a combination of detailed data (Origin-Destination ("OD") pattern data, travel time data, and toll rate data) for all of 2024 and the first half of 2025. We estimated the capture model for the six time periods consistent with the Steer Model (AM Peak, AM Shoulder, Midday, PM Peak, PM Shoulders, and Night).

4.12 We started with very detailed trip pattern data by travel route from TomTom.[8] Specifically, this data included Greenway demand and the total demand that was "in-scope" to either use the Greenway or an alternate route by OD pair and time period which allowed us to determine the capture rate for each OD. For obtaining the TomTom data, we used an area with 77 origins and destinations as displayed in Figure 4.3.

Figure 4.3: Origins and Destinations for TomTom Trip Pattern Data



Source: Steer

4.13 Using historical travel time data for January 2024 through June 2025 from TomTom and Google Maps, we then calculated the travel times for each OD pair using the Greenway and

[8] In Chapter 2, we introduced TomTom and presented travel time data we obtained from TomTom; for the capture model estimation, we also obtained trip pattern data from TomTom.

alternate route for each time period. We set the toll rates based on the current toll rates and assumptions on which entry and exit ramp each OD pair uses.

4.14 We carried out logistic regressions to relate these capture rates to the difference in generalized cost (combined time and cost value) between the Greenway route and the alternatives. To combine time and costs into a generalized cost of travel we needed values of time ("VOTs") and a route specific preference parameter. We set the VOTs based upon the household income levels in Loudoun and Fairfax Counties. We document these calculations later in Chapter 6 which describes the calculation of Value of Travel Time Savings parameters in the user benefit analysis, but note that we did not increase VOTs based on average vehicle occupancy, to be consistent with the approach often used in traffic and revenue forecasting. This approach is also conservative as it results in lower VOTs than the VTTSs used in the user benefit analysis. The VOTs we set as an input in the capture model are:

- Peak Periods = $42.84/hour (in 2024$)
- Off-Peak Periods = $31.16/hour (in 2024$)

Model Estimation

4.15 To estimate the model, we used a logit estimator. As the logit estimator is usually based on binary data, we converted the continuous share data through a weighting process where capture rates for each OD pair are weighted by their respective share of in-scope demand[9]. The non-linear nature of the models allows the incorporation of a changing elasticity between the generalized cost differential and the capture rate of the asset, as they vary across different OD pairs and toll schedules. The model took the following form:

$$CR_i = \beta_0 + \frac{1}{1+e^{\beta_1\left(GC_i^{Asset} - GC_i^{Alternative}\right)}} + \epsilon_i \text{ ; where}$$

$$GC_i^{Asset} = TT_i^{Asset} + \frac{TC_i^{Asset}}{v} \times 60 \text{ ; and}$$

$$GC_i^{Alternative} = TT_i^{Alternative} + \frac{TC_i^{Alternative} + RP_i^{Alternative}}{v} \times 60$$

Where,

CR_i is the Capture Rate for OD pair *i*

β_0 is the intercept term – the minimum capture rate, independent of the generalized cost difference

β_1 is the parameter tying the capture rate on the facility to the generalized cost difference

GC_i is the generalized cost for each OD as defined by the equations above.

[9] For the final model, the weights were the total volume of trips for all hours of the day (as opposed to the respective time periods) between each OD pair.

TT_i^j is the average travel time in minutes between OD pair *i* when using route *j*

TC_i^j is the monetary cost, or toll cost (in $) when using route *j* to travel between OD pair *i*

RP_i^j is the monetary cost representing the route preference when using route *j* to travel between OD pair *i*

υ is the asserted Value of Time (in $/hour)

ϵ_i is a residual term representing random noise in the data, assumed to average to zero

Model Results

4.16 We tested several model specifications to ensure that the model with the best fit was used to forecast capture rates. In addition, we compared parameters of models with similar goodness of fit and chose one with parameter values that were in line with observed toll sensitivities, we have previously estimated through econometric models.

4.17 As part of the estimation of the model, we tested different route preference values. The route preference parameter is intended to capture all the benefits that travelers perceive about a route beyond the travel time savings. This includes benefits such as safety, comfort, and reliability. The route preference parameter is similar to the mode specific constant used in mode choice models.

4.18 In our experience, travelers perceive the benefits of toll roads greater as the distance of their trip increase. Travelers also experience greater travel time reliability benefits during peak periods when there is greater congestion in the network and more variability in travel times. We therefore were reassured that we found the best estimated capture model to include higher route preference values for longer trips and in the peak periods. Table 4.2 displays the route preference values for the selected capture model, with the values presented as a percentage of the Greenway toll rate.

Table 4.2: Route Preferences Used in Capture Model – as Percentage of Greenway Toll Rate

Trip Distance	AM Peak	AM Shoulder	Midday	PM Shoulder	PM Peak	Night
< 15 Miles	16%	13%	13%	12%	16%	8%
15 – 30 Miles	48%	39%	39%	36%	48%	17%
> 30 Miles	80%	65%	65%	60%	80%	25%

Source: Steer

4.19 As mentioned above, data for three time periods (AM, PM Peak and Midday) were aggregated and further subset to key OD pairs before being used to estimate the Logit. Table 4.3 presents the regression results.

Table 4.3: Estimated Model Parameters and Model Fit Metrics

Variable	Coefficient	z value
Intercept (β_0)	-1.043	-983.776
Scalar (β_1)	-0.075	-591.567
AIC	890125.2	
BIC[10]	890141	

Source: Steer

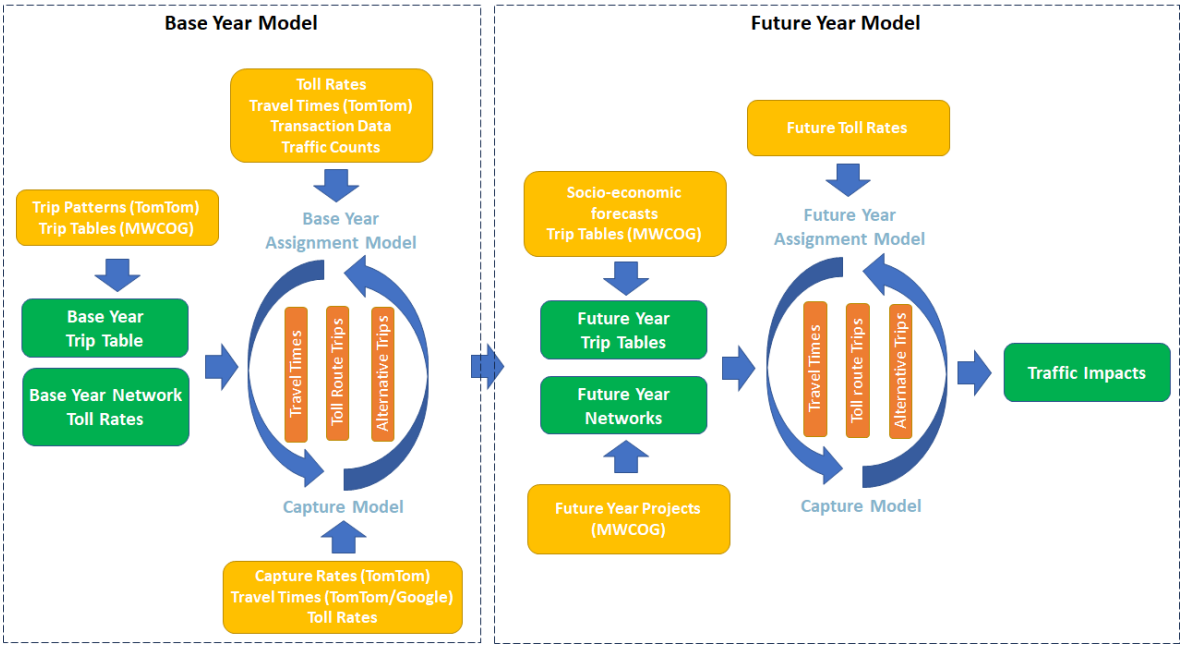
Model Components and Run Sequence

4.20 We designed the Steer Model with Base Year Model and Future Year Model elements, as presented in Figure 4.4. Within each of the base year and future year, we have included a feedback loop between the capture model and assignment components. Specifically, the capture model component estimates the number of trips that use the Greenway versus alternate routes and the assignment model component assigns those trips to specific roads based on the constraints of whether the trips are allowed to use the Greenway or not from the capture model.

4.21 Since the capture model uses travel times on each route, along with toll costs and behavioral parameters, travel times are an input to the capture model. For the first iteration, travel times are based on previously observed travel times, and then for subsequent iterations, the capture model uses the travel times output from the prior iteration's assignment component. As this capture model – highway assignment iteration process is a custom-developed process without a fixed standard, we set the process to be repeated 4 times, as we found the travel times to stabilize between iterations at this point.

[10] AIC stands for Akaike Information Criterion and BIC stands for Bayesian Information Criterion. They are model selection criteria that are helpful to compare different model specifications, with models having lower AIC and BIC values being preferred. Steer used BIC to select between different model specifications.

Figure 4.4: Model Components and Run Sequence of Steer Model



Source: Steer

2024 Base Year Model

4.22 We prepared a 2024 Base Year of the model using the subarea network and capture model described above. Specifically, we used a run of the MWCOG 2025 model year to extract the subarea files. We then calibrated the model so that the model's forecasts validated against observed 2024 conditions using the following data provided by TRIP II and described in Chapter 2:

- Greenway transaction data by plaza, direction and time period
- Traffic counts along screenline locations in the study area
- Travel times along the Greenway and alternative routes from TomTom
- Trip pattern information for study area trips from TomTom

Network

4.23 Starting with the MWCOG 2025 network, we prepared the subarea network to represent the highway network in 2024. We verified the coding of key model attributes, such as number of lanes and type of facility. We needed to adjust the coding of three network improvements:

- Remove the Northstar Boulevard Extension between US 50 and Evergreen Mills Road – this improvement is coded in the MWCOG 2025 network but it was completed in December 2024, after our 2024 traffic data was collected.
- Add the Northstar Boulevard Extension between US 50 and Tall Cedars Road – this improvement was not coded in the MWCOG 2025 network but is already in place.

- Add the Route 7 Corridor Improvements - Phase 1 & Phase 2 – this improvement was completed in 2024 but was needed to be added to the highway network by increasing the number of lanes and adjusting the facility type along Rt 7 between Jarrett Valley Drive and E of Colvin Forest Drive.

Trip Matrices

4.24 Trip matrices are the component of the network model that represents demand and are set as a table that includes the origin TAZ as rows and destination TAZ as columns with the number of trips between each OD in the corresponding cell. In order to develop the 2024 trip matrices for the Steer Model, we first extracted subarea trip matrices from the 2023 model year (2024 not being available) of the latest version of the MWCOG model. We considered the 2023 matrices to be a satisfactory starting point for our recalibration effort, recognizing that through the calibration process, we would adjust these matrices to represent traffic levels that match observed 2024 traffic levels on key roads in the study area.

4.25 We also note that our MWCOG model runs include the Silver Line Metro project, ensuring that the highway trip matrices extracted for the study area were based on mode choices that reflect the inclusion of this significant transit option in the study area.

Toll Rates

4.26 Table 4.4 shows the 2024 Greenway toll rates by plaza for the peak and off-peak time periods.

Table 4.4: 2024 Greenway Tolls by Plaza (Nominal $)

Toll Plaza	Peak	Off-Peak
Mainline*/	$5.80	$5.25
Rt 28	$5.80	$5.25
Rt 606 - Old Ox Rd	$5.80	$5.25
Rt 607 - Loudoun Co Pkwy	$5.80	$5.25
Rt 772- Ryan Rd	$5.10	$4.55
Rt 901 - Claiborne Pkwy	$5.10	$4.55
Rt 659 - Belmont Ridge Rd	$5.10	$4.55
Shreve Mill Rd	$4.10	$4.10

Source: TRIP II

Model Calibration and Validation

4.27 We performed various calibration adjustments in the model to study area roadway characteristics such as free-flow speed and capacity, volume-delay functions, observed capture rates (based on screenline counts) as well as adjustments to the trip matrices to obtain a better fit between observed and model-estimated volumes along screenlines, Greenway transactions, Greenway capture, and travel times along the Greenway and alternative routes. To help guide the calibration adjustments we made, we referred to the

VDOT Travel Demand Modeling Policies and Procedures Manual[11] ("VDOT Manual"), in addition to local guidance, US guidance ("TMIP") and UK guidance ("WebTAG"). In the assessment of the model validation, we used various guidelines, recognizing, as noted in the VDOT Manual, that the guidelines are not standards that are formal definitions of requirements and that the "use of such rigid standards is not considered good practice and is not recommended." Further, we performed the calibration balancing the model's validation across different measures recognizing that improvements to one measure could lead to poorer performance relative to another measure.

4.28 We reviewed the performance of the model estimated Greenway transactions and traffic volumes at the screenlines using the GEH[12] statistic, which is a common measure calculated to determine how well forecasted traffic matches observed traffic. The GEH statistic is calculated as:

$$GEH = \sqrt{\frac{(Volume_{Modeled} - Volume_{Observed})^2}{(Volume_{Modeled} + Volume_{Observed}) * 0.5}}$$

4.29 GEH values less than 5 indicate a close fit of observed levels, while GEH values greater than 10 indicate that more attention may be needed on a specific location of the model. For Greenway transactions and screenline total, we sought to have a majority of measurements with a GEH less than 5 and almost all with a GEH of less than 10. For the screenline volume calibration, we also aimed to have the difference between the total screenline observed and forecasted traffic values within 10%.

Greenway Transactions

4.30 Table 2.5 shows a comparison of model and observed 2024 Greenway transactions by toll plaza at the daily, AM peak, PM peak and Off-peak levels for an average weekday. The table shows that we obtained a strong alignment between model and observed conditions with GEH values falling within acceptable ranges outlined in paragraph 4.29.

4.31 In recognition of the differences between actual and modeled transactions, we applied post-model adjustments to correct for the differences when forecasting. We implemented this by calculating shifting[13] and scaling[14] adjustments, and applied the average of the shifting and scaling adjustments for the Mainline Plaza and Old Ox Road Plaza, and the shifting adjustment for the other toll plazas.

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[11] Cambridge Systematics, *Virginia Department of Transportation Travel Demand Modeling Policies and Procedures*, August 2020.

[12] GEH stands for Geoffrey E. Havers who invented the measure which is similar to a chi-squared statistical test.

[13] Shift the model outputs by the difference in the base year model's output and observed level.

[14] Factor the model outputs by the percentage-difference in the base year model's output and observed level.

Table 4.5: Greenway Daily Transactions (2024): Model vs Observed

Daily						
	Observed		Modeled		GEH	
Location	EB Exit	WB Entrance	EB Exit	WB Entrance	EB Exit	WB Entrance
Mainline Plaza	17,718	17,702	17,480	16,467	0	2
Old Ox Rd (Rte 606)	1,343	1,669	1,323	1,431	0	1
Loudoun County Pkwy (Rte 607)	370	559	208	251	2	3
Ryan Rd (Rte 772)	712	695	992	982	2	2
Claiborne Pkwy (Rte 901)	373	384	618	906	2	4
Belmont Ridge Rd (Rte 659)	348	490	406	410	1	1
Shreve Mill Rd	82	93	265	171	3	1
TOTAL	**20,946**	**21,592**	**21,293**	**20,618**	**0**	**1**
Total %-Difference	**2%**		**-5%**			

Source: Steer

Table 4.6: Greenway AM Peak Transactions (2024): Model vs Observed

AM Peak						
	Observed		Modeled		GEH	
Location	EB Exit	WB Entrance	EB Exit	WB Entrance	EB Exit	WB Entrance
Mainline Plaza	5,336	1,365	5,289	1,383	0	0
Old Ox Rd (Rte 606)	407	154	394	177	0	1
Loudoun County Pkwy (Rte 607)	96	59	23	60	6	0
Ryan Rd (Rte 772)	176	68	199	111	1	3
Claiborne Pkwy (Rte 901)	78	48	118	83	3	3
Belmont Ridge Rd (Rte 659)	74	63	77	65	0	0
Shreve Mill Rd	18	12	35	15	2	0
TOTAL	**6,185**	**1,768**	**6,136**	**1,894**	**0**	**2**
Total %-Difference	**-1%**		**7%**			

Source: Steer

Table 4.7: Greenway PM Peak Transactions (2024): Model vs Observed

PM Peak						
Location	Observed		Modeled		GEH	
	EB Exit	WB Entrance	EB Exit	WB Entrance	EB Exit	WB Entrance
Mainline Plaza	2,060	5,909	2,174	6,140	2	2
Old Ox Rd (Rte 606)	110	456	145	505	2	1
Loudoun County Pkwy (Rte 607)	44	113	28	39	2	5
Ryan Rd (Rte 772)	94	163	92	273	0	5
Claiborne Pkwy (Rte 901)	64	78	83	301	1	10
Belmont Ridge Rd (Rte 659)	57	96	61	62	0	2
Shreve Mill Rd	10	16	39	1	4	3
TOTAL	**2,439**	**6,830**	**2,623**	**7,320**	**2**	**4**
Total %-Difference	**8%**		**7%**			

Source: Steer

Table 4.8: Greenway Off-Peak Transactions (2024): Model vs Observed

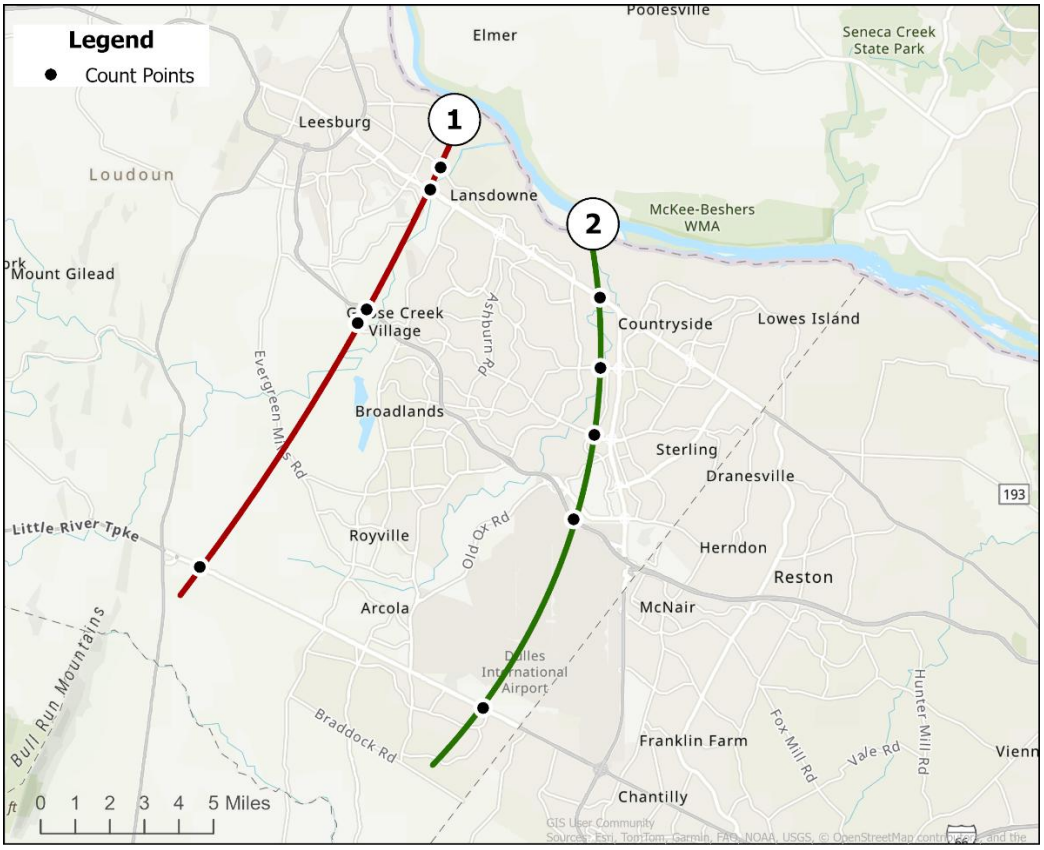
Off-Peak						
Location	Observed		Modeled		GEH	
	EB Exit	WB Entrance	EB Exit	WB Entrance	EB Exit	WB Entrance
Mainline Plaza	10,322	10,429	10,017	8,944	1	3
Old Ox Rd (Rte 606)	826	1,059	785	749	0	2
Loudoun County Pkwy (Rte 607)	230	387	157	152	1	3
Ryan Rd (Rte 772)	442	464	701	598	2	1
Claiborne Pkwy (Rte 901)	231	258	416	523	2	3
Belmont Ridge Rd (Rte 659)	217	332	268	284	1	1
Shreve Mill Rd	54	65	191	155	3	2
TOTAL	**12,322**	**12,994**	**12,534**	**11,405**	**0**	**3**
Total %-Difference	**2%**		**-12%**			

Source: Steer

Screenline Volumes

4.32 Another model validation step is to check how well the model's forecasted traffic levels match observed levels for screenlines. A screenline is an imaginary line that passes through points on parallel roads that give an indication of the total traffic passing in a direction. Based on the discussions and agreements during the Working Group meetings, we defined two screenlines that include key locations of the Greenway and alternate roads and assessed the performance of model's forecasted total traffic passing each screeline against observed traffic levels. Figure 4.5 displays the two screenlines.

Figure 4.5: Traffic Volume Screenlines



Source: Steer

4.33 Table 4.9 shows a comparison of model and observed traffic volumes along screenline 1 at the daily, AM peak, PM peak and Off-peak conditions as well as the percentage difference in total screenline traffic and the Greenway capture rates. Table 4.13 shows similar information for screenline 2. As with the Greenway transactions, the model estimates of screenline traffic volumes exhibit a close fit with the observed traffic data. On screenline 2, one location with larger GEHs is Gloucester Parkway westbound, but we note that the observed traffic levels reflect a large directional imbalance due to specific local movements that a network model cannot fully reflect.

Table 4.9: Screenline 1 Daily Traffic Volumes (2024): Model vs Observed

Daily						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	65,191	63,600	61,340	60,059	3	3
Greenway	10,184	11,661	10,843	11,126	1	1
Sycolin Road	6,804	6,669	5,712	6,685	3	0
Riverside Parkway	5,071	5,820	7,414	6,926	6	3
Route 50	9,113	9,887	9,672	6,950	1	7
Total	**96,363**	**97,637**	**94,981**	**91,747**	**1**	**4**
Total Screenline % Difference			**-1%**	**-6%**		
Greenway Capture	**11%**	**12%**	**11%**	**12%**		

Source: Steer

Table 4.10: Screenline 1 AM Peak Traffic Volumes (2024): Model vs Observed

AM Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	13,318	7,282	12,476	7,236	5	0
Greenway	3,276	802	3,266	925	0	3
Sycolin Road	1,058	1,004	780	958	6	1
Riverside Parkway	1,050	385	1,204	488	3	3
Route 50	2,013	1,089	2,422	879	5	4
Total	**20,714**	**10,561**	**20,148**	**10,485**	**1**	**0**
Total Screenline % Difference			**-3%**	**-1%**		
Greenway Capture	**16%**	**8%**	**16%**	**9%**		

Source: Steer

Table 4.11: Screenline 1 PM Peak Traffic Volumes (2024): Model vs Observed

PM Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	10,038	13,277	9,481	11,961	4	7
Greenway	1,000	3,769	1,008	3,953	0	2
Sycolin Road	1,227	1,444	906	1,331	6	2
Riverside Parkway	889	1,683	993	1,802	2	2
Route 50	1,407	2,141	1,428	2,586	0	6
Total	**14,561**	**22,313**	**13,815**	**21,633**	**1**	**1**
Total Screenline % Difference			**-5%**	**-3%**		
Greenway Capture	**7%**	**17%**	**7%**	**18%**		

Source: Steer

Table 4.12: Screenline 1 Off-Peak Traffic Volumes (2024): Model vs Observed

Off-Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	41,836	43,042	39,383	40,862	3	2
Greenway	5,909	7,091	6,569	6,249	2	2
Sycolin Road	4,519	4,222	4,026	4,396	2	1
Riverside Parkway	3,133	3,752	5,217	4,636	7	3
Route 50	5,693	6,657	5,823	3,485	0	10
Total	**61,089**	**64,764**	**61,018**	**59,628**	**0**	**4**
Total Screenline % Difference			**0%**	**-8%**		
Greenway Capture	**10%**	**11%**	**11%**	**10%**		

Source: Steer

Table 4.13: Screenline 2 Daily Traffic Volumes (2024): Model vs Observed

Daily						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	67,121	64,898	67,797	66,420	1	1
Greenway	17,718	17,702	17,480	16,467	0	2
Waxpool Road	28,634	31,330	26,694	27,894	2	4
Gloucester Parkway	20,013	13,319	20,270	19,972	0	11
Route 606	20,768	20,992	18,803	20,118	3	1
Airport Ramp	1,400	1,297	1,498	1,476	1	1
Route 50	36,127	39,195	34,434	34,207	2	5
Total	**191,781**	**188,733**	**186,976**	**186,555**	**2**	**1**
Total Screenline % Difference			**-3%**	**-1%**		
Greenway Capture	**9%**	**9%**	**9%**	**9%**		

Source: Steer

Table 4.14: Screenline 2 AM Peak Traffic Volumes (2024): Model vs Observed

AM Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	13,080	8,258	13,860	7,652	4	4
Greenway	5,336	1,365	5,289	1,383	0	0
Waxpool Road	4,945	4,018	4,712	3,395	2	6
Gloucester Parkway	3,160	1,513	3,508	2,414	4	13
Route 606	3,399	3,848	3,414	3,628	0	2
Airport Ramp	301	98	272	117	1	1
Route 50	7,979	4,319	7,610	3,937	3	4
Total	**38,198**	**23,417**	**38,664**	**22,525**	**2**	**4**
Total Screenline % Difference			**1%**	**-4%**		
Greenway Capture	**14%**	**6%**	**14%**	**6%**		

Source: Steer

Table 4.15: Screenline 2 PM Peak Traffic Volumes (2024): Model vs Observed

PM Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	10,562	13,134	10,805	13,765	1	3
Greenway	2,060	5,909	2,174	6,140	2	2
Waxpool Road	4,796	6,075	4,731	6,064	1	0
Gloucester Parkway	3,784	2,863	3,517	3,744	3	10
Route 606	3,778	3,463	3,308	3,630	5	2
Airport Ramp	198	431	249	511	2	2
Route 50	5,579	8,485	5,213	7,317	3	8
Total	**30,756**	**40,358**	**29,998**	**41,171**	**3**	**3**
Total Screenline % Difference			**-2%**	**2%**		
Greenway Capture	**7%**	**15%**	**7%**	**15%**		

Source: Steer

Table 4.16: Screenline 2 Off-Peak Traffic Volumes (2024): Model vs Observed

Off-Peak						
	Observed		Modeled		GEH	
Location	EB	WB	EB	WB	EB	WB
Route 7	43,480	43,507	43,132	45,003	0	2
Greenway	10,322	10,429	10,017	8,944	1	3
Waxpool Road	18,893	21,238	17,252	18,435	3	5
Gloucester Parkway	13,070	8,944	13,246	13,815	0	10
Route 606	13,592	13,682	12,081	12,860	3	2
Airport Ramp	902	769	977	848	1	1
Route 50	22,570	26,392	21,610	22,954	1	5
Total	**122,826**	**124,958**	**118,314**	**122,859**	**3**	**1**
Total Screenline % Difference			**-4%**	**-2%**		
Greenway Capture	**8%**	**8%**	**8%**	**7%**		

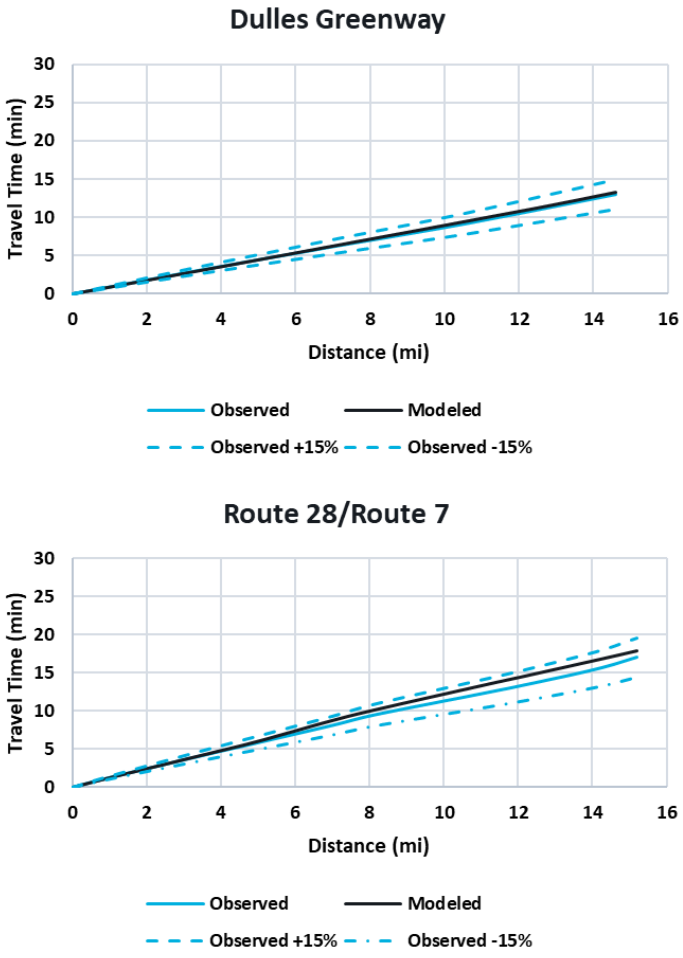
Source: Steer

Travel Times

4.34 Accurate representation of travel times is an important element of models used to evaluate time-cost trade-offs of potential toll facility users. Figure 4.6 and Figure 4.7 present the observed and forecasted travel times along the Greenway and the main alternative route (Route 7/VA-28) for the AM Peak Eastbound and PM Peak Westbound directions (representing the peak

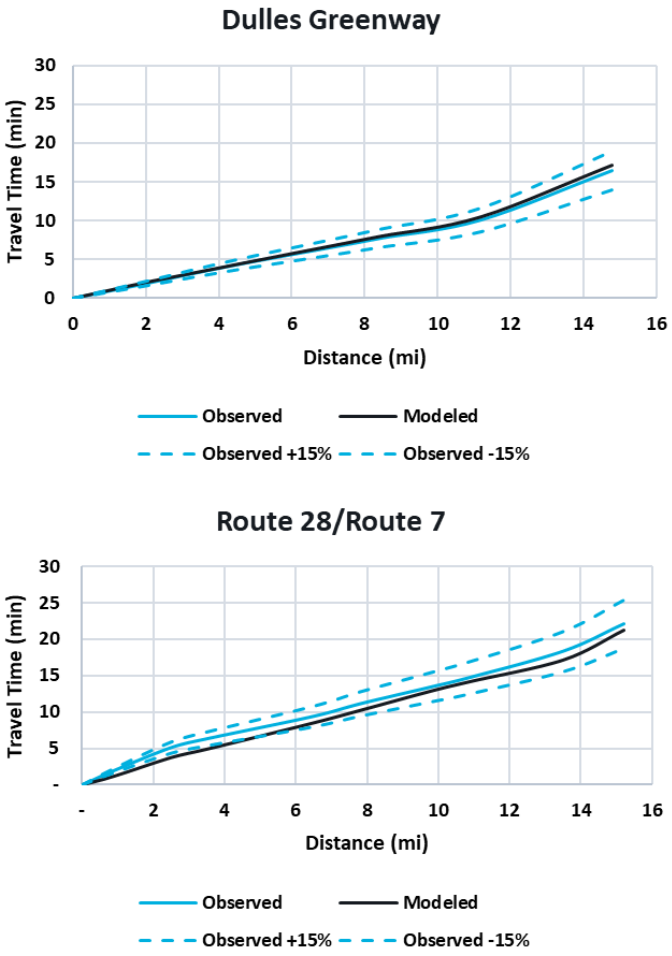
periods and peak directions), showing the forecasted travel times closely match the observed conditions.

Figure 4.6: Travel Times: Model vs Observed (AM Peak-Eastbound)



Source: Steer, TomTom

Figure 4.7: Travel Times: Model vs Observed (PM Peak-Westbound)

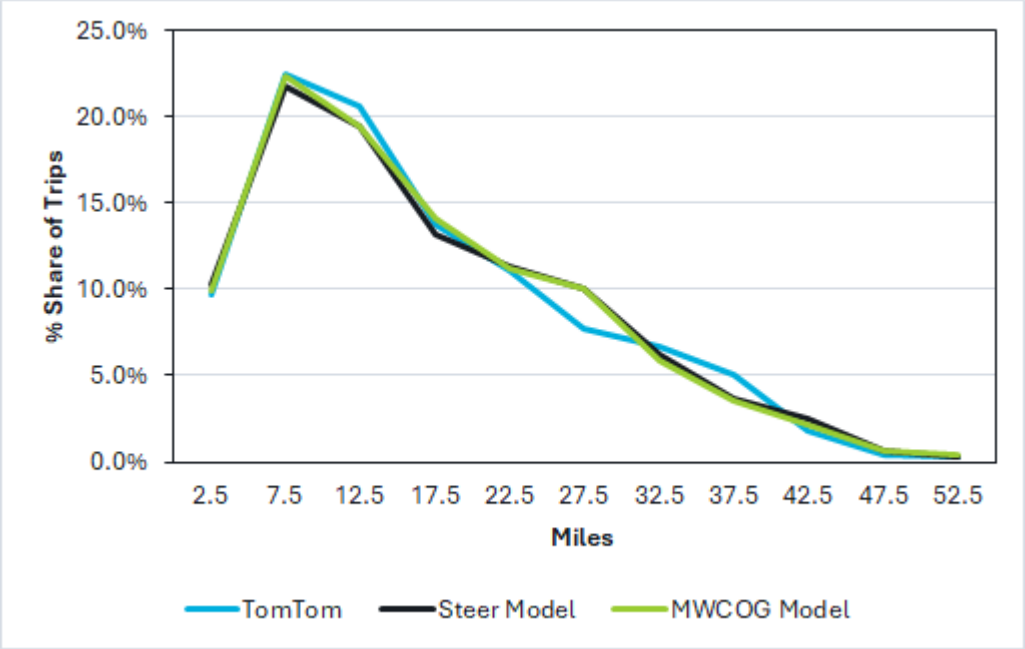


Source: Steer, TomTom

Trip Patterns

4.35 In addition to validating the traffic levels and travel times forecast by the model, we validated its travel patterns in the study area. As part of the model calibration, it is often necessary to adjust some elements of the trip matrices, and thus it is useful to compare the distribution of trip lengths to confirm they align with the starting matrices, in this case from the MWCOG model, and observed sample of trip patterns, in this case from TomTom. To perform this comparison, we first aggregated the Steer Model and MWCOG trip matrices to the zone level of the TomTom data and then calculated the share of trips by length. Figure 4.8 presents this comparison and shows that the Steer Model trip patterns are similar to those in both the MWCOG model and TomTom data.

Figure 4.8: Trip Length Distribution Comparison



Source: Steer, TomTom, MWCOG

4.36 Based on the calibration results, we considered the model suitable to forecast traffic conditions on the Greenway and alternative routes in the Rate Year 2024 and to analyze the impact of toll rate increases.

Steer Model Advantages

4.37 As noted at the beginning of this chapter, the Steer Model represents an investment grade model though the use of corridor specific data to build a robust model that accurately forecasts conditions in the project study area. Specifically, the Steer Model has the following advantages compared to the MWCOG model:

- More accurate representation of study area roadways.
- Refined time periods to better reflect sensitivity of traffic demand within peak periods.
- State-of-the-practice methods to forecast travel demand on toll facilities.
- Better representation of observed performance of the Greenway and nearby roadways.

5 Traffic Forecasts and Material Discouragement

Overview

5.1 In Chapter 4, we presented details of the development of the Steer Network Model, which was calibrated to 2024 traffic conditions. We used this model to develop a 2026 Rate Year model year, incorporating the MWCOG population and employment growth forecasts described in Chapter 3, to forecast traffic along the Greenway for various tolling scenarios, including the proposed toll rates, for year 2026. This chapter discusses the forecasted 2026 traffic levels for these scenarios and considers the forecasts resulting from the proposed toll rates in relation to the material discouragement condition.

2026 Rate Year Model

5.2 In order to evaluate the impact of the Greenway toll rate increases in the Rate Year 2026, we developed a 2026 model year for the Steer Model. This model year includes changes in network and socioeconomic data as discussed in the following sections.

Network

5.3 We created the 2026 network by updating the 2024 network to include the roadway improvement projects in the study area that would be complete by the end of 2026. These improvement projects, per the latest MWCOG Transportation Improvement Plan, are:

- Northstar Blvd Extension between US-50 and Evergreen Mills Road
- Rock Hill Road Overpass (Connector Road from Sunrise Valley Dr To Innovation Ave)

Growth

5.4 We developed the 2026 subarea trip matrices by using 2025 and 2030 MWCOG model files. First, we ran both those years and extracted the subarea matrices. Assuming that the trip differences between these two trip matrices are proportionally distributed across years, we kept 40% of the difference (representing two years of growth) and added it to the calibrated 2024 matrices to estimate the 2026 conditions. We applied further small adjustments to the ODs of certain in-scope Greenway movements to reflect how traffic has grown in 2025 over 2024. Specifically, we applied the following adjustments to the ODs that are in-scope to use the Greenway:

- Mainline AM: +1.25%
- Mainline PM: +1.75%
- Mainline OP: -1.5%
- Old Ox Road, Loudoun County Parkway, and Ryan Road Ramps, all periods: -8%

Toll Rates

5.5 We used the model to forecast Greenway traffic levels for 3 toll rate scenarios in 2026. First, we evaluated a scenario where the toll rates are not increased and remain at the current levels. The second set of rates we analyzed are Toll Case A[15] that represent an increase of +$0.95 to the peak period-peak direction and +$0.35 to off-peak toll rates. The final set of toll rates we analyzed are Toll Case B[16] that have a +$0.70 increase to the peak period-peak direction toll rates and +$0.40 to off-peak toll rates. The 2-axle transponder toll rates for each toll case are presented in Table 5.1.

Table 5.1: 2026 2-Axle Transponder Toll Rates Analyzed (Nominal Dollars)

Toll Plaza	No Toll Increase		Toll Case A		Toll Case B	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
Mainline	$5.80	$5.25	$6.75	$5.60	$6.50	$5.65
Rt 28	$5.80	$5.25	$6.75	$5.60	$6.50	$5.65
Rt 606 - Old Ox Rd	$5.80	$5.25	$6.75	$5.60	$6.50	$5.65
Rt 607 - Loudoun Co Pkwy	$5.80	$5.25	$6.75	$5.60	$6.50	$5.65
Rt 772- Ryan Rd	$5.10	$4.55	$6.05	$4.90	$5.80	$4.95
Rt 901 - Claiborne Pkwy	$5.10	$4.55	$6.05	$4.90	$5.80	$4.95
Rt 659 - Belmont Ridge Rd	$5.10	$4.55	$6.05	$4.90	$5.80	$4.95
Shreve Mill Rd	$4.10	$4.10	$5.05	$4.45	$4.80	$4.50

Source: Steer

2026 Forecasts

5.6 We used the 2026 Rate Year Model to generate traffic forecasts for the 3 toll scenarios. The average weekday traffic for the Greenway by toll plazas and implied toll elasticities by peak and off-peak travel are reported in this section.

While the model produces forecasts of average weekday traffic, we converted those forecasts into average daily traffic forecasts for reporting purposes in the tables in this section. This differs from the values presented relating to the calibration of the model in Chapter 4, which presented average weekday values.

[15] Toll Case A is referred to in the Application as the Primary Proposed Tolls.

[16] Toll Case B is referred to in the Application as the Secondary Proposed Tolls.

Forecasts

5.7 Table 5.2 shows the forecasted average daily traffic levels at each toll plaza for each of the toll rate scenarios. It shows that without a toll rate increase, at the current toll rates which represent a reduction in real terms, the model forecasts 2-way total average daily transactions of 43,430, while it forecasts 42,323 total average daily transactions after implementing Toll Case A toll rates or 42,334 for Toll Case B toll rates.

Table 5.2: Estimated 2026 Average Daily Transactions by Toll Plaza

Toll Plaza	No Toll Increase		Toll Case A		Toll Case B	
	EB	WB	EB	WB	EB	WB
Mainline Plaza	18,061	18,139	17,659	17,671	17,670	17,677
Old Ox Rd (Rte 606)	1,297	1,639	1,262	1,580	1,259	1,577
Loudoun County Pkwy (Rte 607)	366	545	383	540	363	550
Ryan Rd (Rte 772)	715	734	683	702	688	698
Claiborne Pkwy (Rte 901)	403	422	367	408	382	404
Belmont Ridge Rd (Rte 659)	387	488	364	476	368	473
Shreve Mill Rd	119	114	116	114	116	109
Total	21,348	22,081	20,833	21,490	20,847	21,487
2-Way Total	**43,430**		**42,323**		**42,334**	

Source: Steer

Material Discouragement

5.8 The Virginia Highway Corporation Act requires consideration of whether the proposed toll increase results in material discouragement of use of the roadway. Va. Code § 56-542, specifies "'Materially discourage use' means to cause a decrease in traffic of three or more percentage points based on either a change in potential toll road users or a change in traffic attributable to the toll rate charged as validated by (i) an investment-grade travel demand model that takes population growth into consideration or (ii) in the case of an investigation into current toll rates, an actual traffic study that takes population growth into consideration."

5.9 Steer has a long-history developing investment-grade travel demand models and using them to prepare forecasts to successfully support the financing of many toll facilities. We leveraged this experience to develop the investment-grade travel demand model described in Chapter 4 and this chapter.

5.10 Table 5.3 presents the comparison of traffic levels between no toll increase and the Toll Case A proposed toll rates, split out by peak and off-peak. It shows that overall daily traffic is forecasted to decrease by 2.5%, and thus, this proposed toll rate increases will not materially discourage traffic usage.

5.11 Table 5.4 presents the same comparison for the Toll Case B proposed toll rates. It shows that Toll Case B is also forecasted to decrease daily traffic by 2.5%, and thus, this proposed toll rate increases will not materially discourage traffic usage.

Table 5.3: Traffic Change from Toll Case A Proposed Toll Rates

Toll Type	No Toll Increase Traffic	Toll Case A Traffic	% Change
Peak	10,715	10,401	-2.9%
Off-Peak	32,715	31,922	-2.4%
Total	**43,430**	**42,323**	**-2.5%**

Source: Steer

Table 5.4: Traffic Change from Toll Case B Proposed Toll Rates

Toll Type	No Toll Increase Traffic	Toll Case B Traffic	% Change
Peak	10,715	10,494	-2.1%
Off-Peak	32,715	31,841	-2.7%
Total	**43,430**	**42,334**	**-2.5%**

Source: Steer

Implied Toll Elasticities

5.12 Toll price elasticity is an economic concept that measures the sensitivity of demand, in this case traffic, to prices. Network travel demand models do not directly include toll elasticities, but toll elasticities can be calculated from model outputs. We calculated these implied toll elasticities to help us assess the reasonableness of the network model's forecasts.

5.13 Table 5.5 displays the peak and off-peak transactions and weighted toll rate changes for each scenario. We estimated the implied toll elasticities by dividing the %-change in traffic by the %-change in toll rates. For example, for Toll Case A toll rates, we divided the -2.5% daily traffic change by the toll rate increase to estimate an overall daily toll elasticity of -0.28. Similarly, we calculated implied toll elasticities of -0.18 for the peak and -0.36 for the off-peak. Toll Case B toll rates produced similar implied toll elasticity values, with -0.17 for the peak, -0.34 for off-peak, and -0.29 for the entire day.

Table 5.5: Implied Toll Elasticities for Toll Cases A & B by Peak and Off-Peak

Time Period	No Increase	Toll Case A		Toll Case B	
	Transactions	Transactions	% Change	Transactions	% Change
Traffic					
Peak	10,715	10,401	-2.9%	10,494	-2.1%
Off-Peak	32,715	31,922	-2.4%	31,841	-2.7%
Daily	43,430	42,323	-2.5%	42,334	-2.5%
Toll Rate Chage from No Increase					
Peak			16.5%		12.2%
Off-Peak			6.8%		7.8%
Daily			9.2%		8.8%
Implied Elasticities					
Peak			-0.18		-0.17
Off-Peak			-0.36		-0.34
Daily			-0.28		-0.29

Source: Steer

5.14 These implied toll elasticities are consistent with other toll elasticities we have observed both on the Greenway and elsewhere. Econometric models are commonly used in traffic and revenue forecasting as an approach to forecast toll facility growth in response to changes in various socioeconomic factors that drive traffic growth. Econometric models are good at isolating the impact that toll changes have had on traffic changes, separating those impacts from other factors that contribute to traffic growth. We have previously estimated econometric models for the Greenway and estimated a peak toll elasticity of -0.11 and off-peak elasticity of -0.24. While it is not uncommon for the implied elasticities from network models to be higher than from econometric models, it is reassuring to see that the econometric modeling also found notably higher elasticities for the off-peak than the peak.

5.15 Moving beyond the Greenway, other comparisons include the historical toll elasticities observed for the DTR which ranged from -0.107 to -0.345.[17] More generally we have recently observed toll elasticities for North American toll facilities ranging from -0.07 to -0.42. The implied toll elasticities from the network model fit nicely within this range.

Alternate Material Discouragement Calculation

5.16 While the information presented above presents the material discouragement calculation relative to the scenario of the current toll rates in the same forecast year, TRIP II maintains that the base for comparison should be the traffic level from the time of the prior toll rate

[17] Stantec, *Dulles Toll Road Investment Grade Traffic and Revenue Study, Final Report*, December 6, 2021.

increase. In Appendix A, we performed the analysis of a proposed set of toll rates under this framework.

6 Benefits to Users

6.1 The Greenway provides benefits to users, including travel time savings, travel time reliability savings, vehicle operating cost savings, and safety advantages when compared to alternative routes. Steer analyzed the expected user benefits and costs of proposed toll rate changes to the Greenway and this chapter describes the analysis.

Approach

6.2 Steer assessed the user benefits of the proposed toll rate changes utilizing the guidance and best practices recommended by the U.S. Department of Transportation ("USDOT") for developing benefit-cost analyses.[18] A benefit-cost analysis ("BCA") provides a systematic framework for quantifying and evaluating the expected benefits and costs of proposed changes to the Greenway's toll costs. While we utilized guidance from the USDOT framework, it was necessary for us to customize our analysis to the requirements of the Rate Case application. Notably, the USDOT guidance relates to estimating the benefits of a project relative to its costs; in contrast, our BCA is analyzed at the user level, with the costs being the toll cost as opposed to the costs of building the Greenway. This user-level BCA is unique, we are not aware of any other similar analyses, and thus there are certain adjustments and adaptations of the USDOT framework that are necessary to perform the analysis.

6.3 The objective of the BCA is to use a consistent methodology that carefully measures user benefits and costs associated with the proposed toll rate changes. Accounting for average vehicle occupancy rates, user benefits and costs are assessed on a per-trip basis.

6.4 The BCA considers the materiality of benefits and costs to focus efforts on estimating impacts that represent a large share of total benefits and costs. For example, we have excluded benefits related to emissions reductions because initial estimates were not appreciable in the context of total benefits and costs.

Measures of Benefits and Costs

6.5 We quantified the following categories of Greenway benefits and costs for the BCA. Each benefit and cost is compared to equivalent measures for alternative routes to the Greenway.

- User Benefits
  - Travel Time Savings
  - Travel Time Reliability Savings
  - Vehicle Operating Cost Savings
  - Accident Cost Savings
- User Costs
  - Toll Cost of Using the Greenway

[18] U.S. Department of Transportation, Benefit-Cost Analysis Guidance for Discretionary Grant Programs, May 2025.

Technical Parameters and Concepts

6.6 *Analysis Period*. We utilized the following periods in our analysis:

- 2023: Latest available year for input data used to estimate the parameters to convert travel time savings and reliability savings into monetary benefits. These values were adjusted to 2024 dollars for consistency.
- 2024 and first half of 2025: Time period for observed traffic volumes and travel time data to represent current conditions.
- 2026 for benefit-cost evaluation (proposed rate year)

6.7 Dollar valuation: Benefits are first determined in 2024 dollars, with the final BCA values expressed in 2026 dollars, applying inflation projections from the Congressional Budget Office ("CBO") to enable comparison with proposed nominal toll rates for 2026.

6.8 BCA measure: The analysis uses benefit-cost ratio ("BCR") to evaluate user benefits per dollar cost of proposed toll rates.

6.9 Discounting: Given that user benefits are accrued contemporaneously with user costs, future benefits and costs are not discounted for the opportunity cost of money.

User Market Segmentation

6.10 The benefits accrued by Greenway users may vary based on their preferences and behaviors. Accordingly, we conducted the BCA for different market segments of Greenway users that are classified based on their primary user class.

- Personal travel: users making trips related to work, shopping, school, or other personal reasons.
- Business travel: users making trips related to official business.
- Airport trips: users making trips to travel from Dulles Airport (access) and after they return to Dulles Airport (egress).
- Truck trips: users operating heavy-duty vehicles (class 2-4 or vehicles with 3-or-more axles).

Table 6.1: Share of Greenway User Classes across 11 O-D Pairs

Market Segment	Share
Commuting/Personal	69.0%
Business	23.7%
Airport Access/Egress	4.0%
Trucks	3.3%

Sources:

- Commuting/personal and business trip shares are estimated using inputs to National Capital Region Transportation Planning Board 2017-2018 Regional Travel Survey and National Household Travel Survey 2022.
- Airport trip shares are estimated based on screenline traffic counts at Eastbound Greenway to Airport (access) and Airport Flyover Ramp from IAD to Westbound Greenway (egress). From these counts, we estimated the proportion of high-VOT passenger trips based on insights from OAG Traffic Analyzer and the report *Washington Dulles International Airport – Protecting the Commonwealth's Largest Airport*.
- Truck shares are estimated from transactions data based on vehicle axle configuration.

Trip Movement Segmentation

6.11 Unlike prior rate case applications that focused on the full length movement along the Greenway, this analysis evaluates the key movements that represent the majority of Greenway trips. This change to focus on key movements addresses a recommendation raised during the 2023 Rate Case by focusing the benefit analysis on both full length and partial length Greenway trips.

6.12 When considering travel in the eastbound direction, there are 35 possible tolled entry-exit ramp movements.[19] It is impractical to expand the analysis from a single entry-exit ramp movement, as had been considered in prior rate cases, to 35 entry-exit ramp movements. Therefore, we identified the entry-exit ramp movements that represented the highest amount of trips and considered these to be the "key movements." The top 10 key movements represent over 90%[20] of all tolled trips using the Greenway, and thus we focused our analysis on these 10 key movements.

6.13 To perform the BCA for each of these entry-exit ramp movements, we used TomTom trip pattern data to identify the OD pairs with the most trips, which we then used in the rest of the BCA to represent the starting and ending point for each key movement. Table 6.2: shows the list of ODs and the key movement entrance and exit ramps they represent. We present the location of these origins and destinations in Figure 6.1 and include maps of the Greenway and alternate route between each OD in Appendix B.

Table 6.2: 10 OD Pairs to Represent Key Greenway Movements

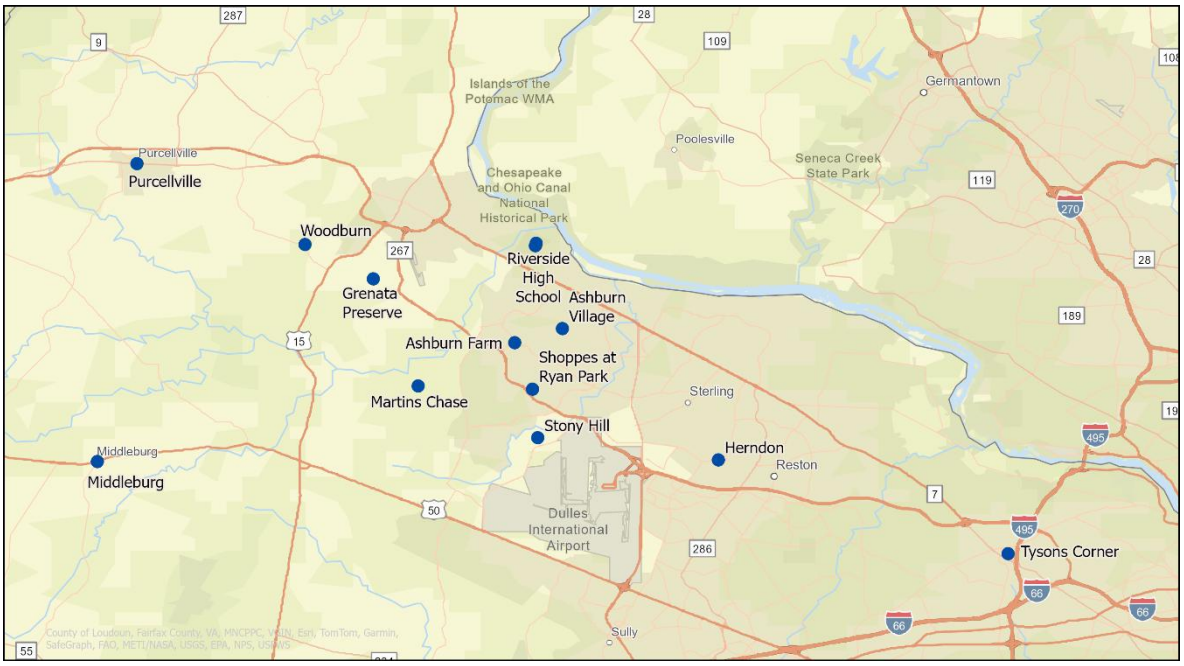
No	OD Pair	Key Movement Entrance Ramp	Key Movement Exit Ramp
1	Purcellville – Herndon	Leesburg Bypass	Mainline Plaza
2	Woodburn - Herndon	Battlefield Parkway	Mainline Plaza
3	Grenata Preserve - Herndon	Shreve Mill Road	Mainline Plaza
4	Riverside High School -Tysons Corner	Belmont Ridge Road	Mainline Plaza
5	Ashburn Farm -Herndon	Claiborne Parkway	Mainline Plaza
6	Ashburn Village -Herndon	Ryan Road	Mainline Plaza
7	Martins Chase -Herndon	Loudoun County Parkway	Mainline Plaza
8	Middleburg -Herndon	Old Ox	Mainline Plaza
9	Purcellville - Shoppes at Ryan Park	Leesburg Bypass	Ryan Road
10	Purcellville - Stony Hill	Leesburg Bypass	Old Ox

Source: Steer

[19] There is also a non-tolled movement between the Leesburg Bypass and Battlefield Parkway.

[20] Note that if the Leesburg Bypass to Battlefield Parkway movement is included, then the top 11 movements, including Leesburg Bypass to Battlefield Parkway, also represent greater than 90% of total trips using the Greenway.

Figure 6.1: Location of the Origin and Destinations Used to Represent Key Movements



Source: Steer

6.14 By analyzing the Greenway and alternate routes used for each OD, we are able to estimate each user benefit category for the specific roads used, which allows a more granular representation of the benefits experienced by Greenway travelers than prior rate cases.

6.15 We conducted a BCA for all 10 ODs separately on the Greenway compared to their respective alternative routes. To simplify the presentation of analysis, we aggregated the results by calculating a weighted average of benefits and costs across the 10 OD pairs.

6.16 The following sections discuss the BCA inputs, assumptions and estimates in more detail.

User Benefits

6.17 In this section, we discuss how Steer determined user benefits. The lower congestion and higher posted speed limits on the Greenway provide users with benefits of travel time reductions and increased reliability on their trips. We also analyzed the potential reduced vehicle operating costs and increased safety benefits that the Greenway provides.

Value of Travel Time Savings:

6.18 The Greenway provides travel time savings that benefit drivers and passengers. For the purpose of the BCA, these personal travel time savings are quantified and monetized based on values of travel time savings ("VTTS"). The monetized VTTS represent the dollars per person-hour that are estimated to be saved when travelers make choices between the

Greenway and alternative routes. Following the US DOT's guidance,[21] we established VTTS values for the various user classes of the Greenway to use in the BCA, as described below.

Personal Travel

6.19 For purposes of the BCA, we assume that Greenway personal travel users reside or work within Loudoun and Fairfax Counties,[22] and thus we calculated VTTS for personal travel, including commuting trips, as 50 percent of the hourly median annual household incomes for Virginia's Loudoun and Fairfax Counties in 2023 (latest year of data available), converted to 2024$. The use of 50% of the hourly median annual household income for personal travel VTTS is consistent with USDOT and FHWA guidance, which recommends valuing personal travel time at half the wage rate. This reflects the economic theory that personal (non-work) time is valuable, but typically less so than paid work time The median household annual incomes for the two counties are weighted and the hourly rates are calculated dividing median household income by 2,080 hours (full-time work hours in a year).

6.20 To estimate the VTTS on a per-vehicle basis, VTTS in dollars per person-hour are multiplied by the average vehicle occupancy rates. We assumed the average vehicle occupancy rate for the metropolitan Washington area's home-based work trips to be 1.23, based on the 2022 National Household Travel Survey ("NHTS").[23] To estimate this value, we used data for South Atlantic metropolitan areas.[24] The dataset includes trips and vehicle occupancy by trip purpose, from which we calculated a weighted average for those purposes that align with home-based work trips.

6.21 Table 6.3 shows how the county-level demographic data were used to calculate the hourly median annual household incomes and the VTTS per vehicle, resulting in a per vehicle VTTS of $47.79.[25]

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[21] U.S. Department of Transportation, Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis, 2016.

[22] Based on a review of Steer Model trips, around 85% of AM trip origins are located in Loudoun or Fairfax County.

[23] Available at https://nhts.ornl.gov/.

[24] This includes the metropolitan areas within Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina and Virginia. The NHTS does not always provide statistically robust, county-level vehicle occupancy rates for every small area. Using the "South Atlantic metropolitan areas" category ensures a large enough sample size for reliable estimates.

[25] We note that this VTTS of $47.79 differs from the VOTs used in the Steer Model ($42.84 for peak periods and $31.16 for off-peak periods). This is due to the inclusion of vehicle occupancy in the VTTS calculations and use of different percentages applied to hourly wage rate for peak and off-peak travel in the model. These differences are consistent with their respective intended uses: VOTs are used to represent how travelers behave while VTTS are used to represent how travelers quantify benefits.

Table 6.3: Hourly Median Annual Household Incomes, 2023

	Loudoun County	Fairfax County	Weighted Average
(a) Households	140,823	412,663	**553,486***
(b) Share of Total (Weights)	25%	75%	**100%***
(c) Median Annual Household Income, 2023$	$178,707	$150,113	**$157,388**
(d) Median Hourly Income, 2023$ (c / 2080)	$85.92	$72.17	**$75.67**
(e) Median Hourly Income, 2024$ (d * 2024 CPI / 2023 CPI)	$88.45	$74.30	**$77.90**
(f) VTTS per Person (50% of Median Hourly Income), 2024$	$44.23	$37.15	**$38.95**
(g) Vehicle Occupancy (NHTS 2022)	1.23	1.23	**1.23**
VTTS per Vehicle, 2024$ (f x g)	$54.27	$45.59	**$47.79**

Source: ACS 5-Year Estimates Data Profiles (2019-2023)
* These figures are a sum instead of weighted average

Business Travel

6.22 Business travel includes work-related trips in personal vehicles by users that are "on-the-clock." Business travel does not include commuting travel, which is included in the personal travel category. We estimated the business travel VTTS based on the regional median hourly wage, consistent with US DOT guidance. This approach captures the decision making of travelers that are mindful of time as they make business-related trips. We conducted the following steps to estimate the VTTS for business travel, and Table 6.4 displays the calculations.

- We begin with the median hourly wage for Washington-Arlington-Alexandria, DC-VA-MD-WV metro area in 2024 (latest year of data available) to establish the representative regional median hourly wage.
- We factored the median hourly wage rate to account for benefits, using an *employer cost for employee cost multiplier* from the BLS. We calculated this multiplier by dividing the median total compensation for employees by the sum of their wages and salaries (US employer cost of compensation) in 2025.
- In keeping with the US DOT's guidance, we then determined the VTTS per person (in dollars per person-hour) to be 100% of the full median hourly income including benefits.
- We then determined the VTTS per vehicle by adjusting the VTTS for vehicle occupancy, based on the 2022 National Household Travel Survey vehicle occupancy rates.

Table 6.4: VTTS of Business Travel

Measure	Value
(a) 2024 Median Hourly Wage (2024$) for Washington-Arlington-Alexandria, DC-VA-MD-WV metro area	$32.90
(b) Benefits Adjustment	1.46
(c) VTTS per Person (100% of Median Hourly Wage), 2024$ (a x b)	$48.01
(d) Vehicle Occupancy (2022 NHTS)	1.02
VTTS per Vehicle, 2024$ (c x d)	**$48.98**

Sources: BLS National Occupational Employment and Wage Estimates, Employer Costs for Employee Compensation by Wage Percentiles (Mar. 2025)

Airport Trips

6.23 Local residents flying from (or to) Dulles Airport can use the Greenway to access the airport. Given the importance of being on time for air travel, this segment of Greenway users is expected to have a higher VTTS compared to other personal travelers. Accounting for the overall higher value that is placed on personal and business air travel, studies have shown that airport-related trips can be valued at 1.35 times other personal travel trips.[26] We applied this factor to estimate a VTTS for airport trips of $64.52, as summarized in Table 6.5.

Table 6.5: Value of Time by Trip Category – Airport Access/Egress

Measure	Value
VTTS per Vehicle for Personal Travel, 2024$	$47.79
Adjustment for value of air-travel related trips	1.35
VTTS per Vehicle for Airport trips, 2024$	**$64.52**

Sources: ACS 5-Year Estimates Data Profiles (2019-2023) and 2022 National Household Travel Survey (NHTS), Transportation Research Board Paper 16-4101, Measuring Air Carrier Passengers Values of Time by Trip Component, 2016.

Truck Trips

6.24 We established the VTTS for truck trips based on time-dependent factors of truck operating costs. The main factors include:

- Driver wages and benefits (representing time-dependent trucking costs for carriers) and
- Supply chain costs (representing the time-dependent costs of shippers without transportation).

[26] Transportation Research Board Paper 16-4101, *Measuring Air Carrier Passengers Values of Time by Trip Component*, 2016.

6.25 We reviewed data on driver wages and benefits from the 2025 American Transportation Research Institute's ("ATRI") national survey of commercial vehicle operators.[27] The survey results indicated that these driver-based costs totaled $1.00 per mile in 2024. For the cost category representing shippers without their own transportation, we used estimates from the survey results of the 2019 National Cooperative Highway Research Program ("NCHRP") Research Report 925 (Project 07-24).[28] This report estimates VTTS for shippers without their own transportation to be $15.30 per shipment hour (in 2019$ which is $18.77 in 2024$). Table 6.6 outlines the calculation steps taken to estimate the VTTS for truck trips.

Table 6.6: VTTS of Truck Trips

Measure	Value
(a) Driver Wages and Benefits per mile, 2024$	$1.00
(b) Average Truck Speed (mph) for Washington-Arlington-Alexandria	53.10 mph
(c) Driver Wages and Benefits per hour, 2024$ (a x b)	$52.83
(d) Shipper w/o transportation VOT per hour, 2024$	$18.77
Truck VTTS per vehicle, 2024$ (c + d)	**$71.61**

Source: Steer, ATRI and FHWA

Value of Reliability

6.27 In addition to offering reduced travel times, the Greenway can provide more consistent travel times compared to alternative routes. The consistency of travel times on trips, or specific segments of a road, at different times of the day is referred to as travel time reliability. Travel time reliability is measured by estimating the additional time travelers plan to offset potential delays, known as buffer time. The USDOT defines reliability as "the degree of certainty and predictability in travel times on the transportation system."[29] Travel time reliability can be affected by changes in travel demand by time of day and other factors including traffic incidents, bottlenecks, planned events or other exogenous events such as weather.

6.28 Reliability benefits may be correlated with travel time savings, especially on heavily congested roads where travelers likely face more travel time variability with longer mean

[27] American Transportation Research Institute, An Analysis of the Operational Costs of Trucking: 2025 Update. (Arlington, VA: American Transportation Research Institute).

[28] NCHRP Report 925 (Project 07-24), National Academies of Sciences, Engineering, and Medicine 2019. Estimating the Value of Truck Travel Time Reliability. Washington, DC: The National Academies Press. https://doi.org/10.17226/25655.

[29] Federal Highway Administration, "Planning Glossary," (website) U.S. Department of Transportation, Washington, DC. https://www.fhwa.dot.gov/planning/glossary/glossary_listing.cfm?TitleStart=R.

travel times.[30] Travelers are expected to take travel time variability into account, giving the worst-case travel times for their planned journeys more weight than average travel times.[31]

6.29 Although the USDOT BCA guidance does not provide specific recommendations on how to measure travel time reliability, there are different reliability metrics that have been developed in relevant studies and are recommended as performance measures by the Federal Highway Administration ("FHWA"). Table 6.7 summarizes some of the most common reliability metrics:[32,33,34]

Table 6.7: Travel Time Reliability Metrics

Metric	Details
Buffer Time and Buffer Time Index	Buffer Time is measured as the **extra** time road users plan to ensure they arrive on-time in 95 percent of their trips along a particular route. Buffer Time Index is measured as the ratio of buffer time to the average (mean) travel time along the route.
Planning Time and Planning Time Index	Planning Time is measured as the **total** time road users plan to ensure they arrive on-time in 95 percent of their trips. Planning Index is measured as the ratio of planning time to the average (mean) travel time along the route.
Travel Time Index	Measured as the ratio of travel time during peak periods to travel time during free-flow traffic.
Misery Index	Measured as the ratio of excess travel time to average (mean) travel times.
On-time Share	Measured as the share of trips that arrive on-time or early. The threshold for on-time trips can be based on the mean travel times plus an additional 10 percent. This metric can also be interpreted as a failure rate, measuring the share of trips that arrive later than the threshold period.

6.30 Figure 6.2 below displays the relationships between Travel Time Index, Buffer Time, and Planning Time Index. It shows the difference between the Planning Time Index and the Travel

[30] U.S. Department of Transportation, Benefit-Cost Analysis Guidance for Discretionary Grant Programs, February 2021.

[31] Federal Highway Administration, Travel Time Reliability: Making It There On-Time, All the Time, 2017.

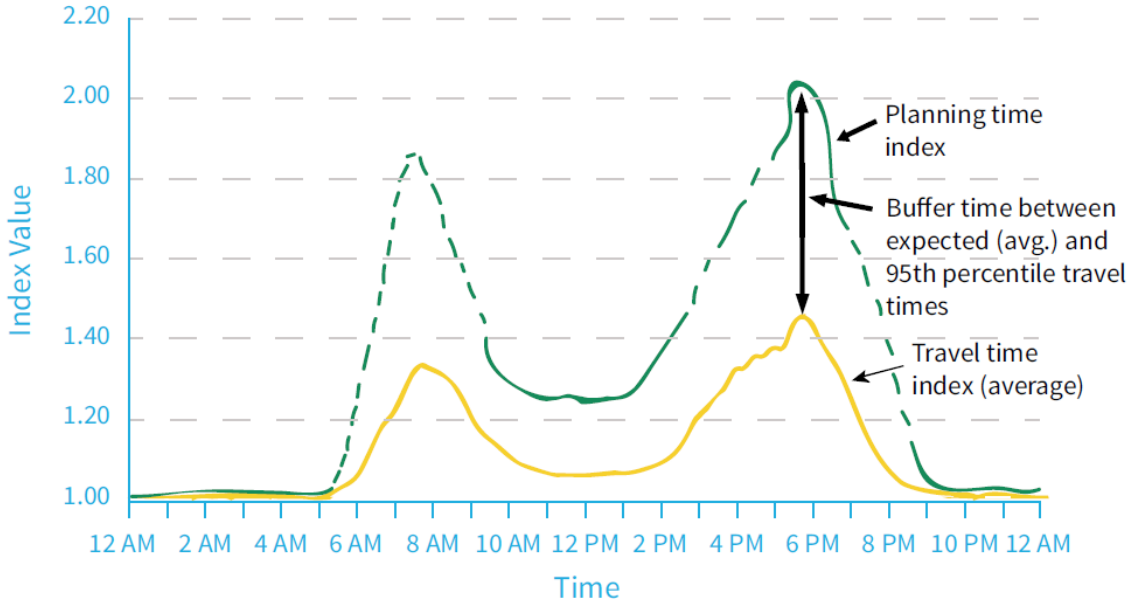
[32] Federal Highway Administration, Does Travel Time Reliability Matter?, 2019.

[33] Cambridge Systematics, Inc., Analytical Procedures for Determining the Impacts of Reliability Mitigation Strategies, SHRP2 Report No. S2-L03-RR-1, Transportation Research Board of the National Academies, Washington, DC, 2013.

[34] Van Lint, J.W.C., Van Zuylen, H.J., and Tu, H., "Travel Time Unreliability on Freeways: Why Measures Based on Variance Tell Only Half the Story," Transportation Research Part A: Policy and Practice, 42(1), pp. 258–277, 2008.

Time Index, as the Planning Time Index is a measure of reliability for any time of day while Travel Time Index is a measure of reliability for peak periods.[35, 36]

Figure 6.2: Reliability Indices by Time of Day



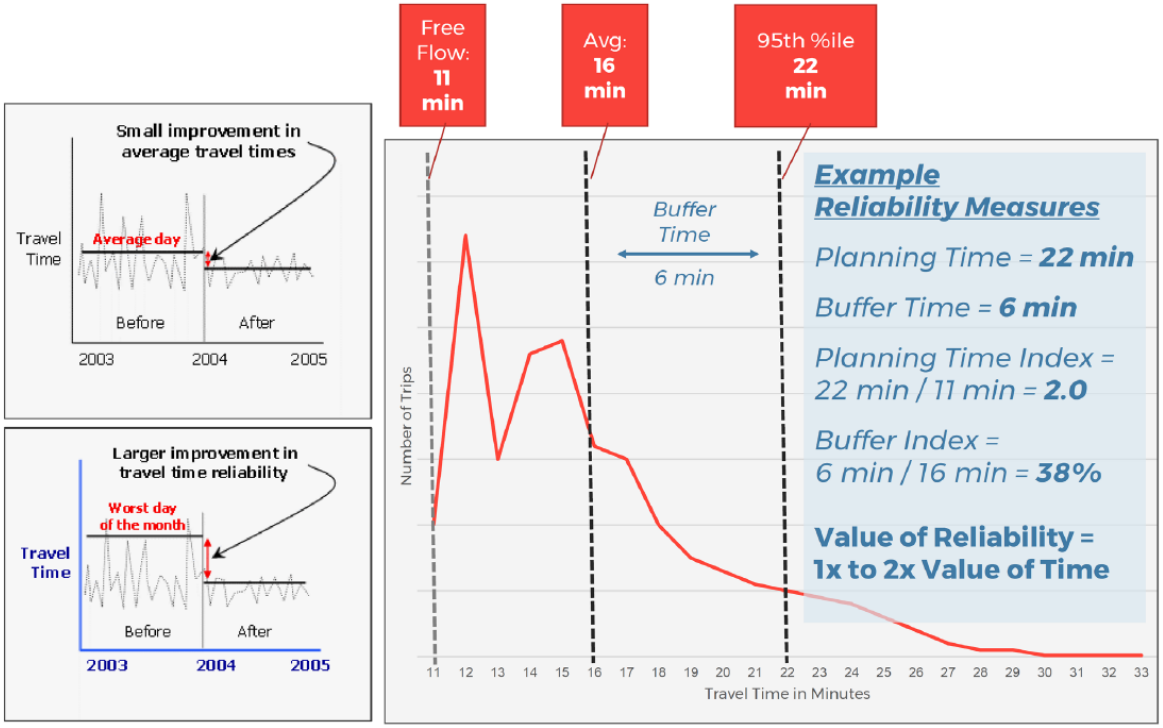
Source: Federal Highway Administration, Does Travel Time Reliability Matter?, 2019.

6.31 For this study, we adopt the FHWA recommended approach for measuring travel time reliability, based on buffer time. Buffer time is estimated as the difference between planning (95th percentile) and average (mean) observed travel times. Figure 6.3 shows an example calculation of travel time reliability, including the calculation of Buffer Time.

[35] Federal Highway Administration, Does Travel Time Reliability Matter?, 2019.

[36] Office of Operations. (2006). Travel Time Reliability: Making it There on Time, All the Time, Report No. FHWA-HOP-06-070, Federal Highway Administration, Washington, DC. Available online: https://ops.fhwa.dot.gov/publications/tt_reliability/brochure/ttr_brochure.pdf

Figure 6.3: Example Calculations of Travel Time Reliability



Source: Federal Highway Administration, Travel Time Reliability: Making It There On-Time, All the Time, 2017.

6.32 We used Value of Reliability ("VOR") to convert the travel time reliability savings into a monetary value. Research supports the theory that travelers value travel time reliability more than they value travel time savings. A comprehensive metanalysis of reliability studies through 2014 showed that the ratio of the value of reliability to the value of time (reliability ratio) can range from 0.08 to 3.29 (averages ranging from 0.1 to 2.51).[37] However, more recent studies on pricing strategies, including toll roads and managed high occupancy toll lanes, have estimated the value of travel time reliability can be higher than 3 times the value of travel time savings for users.[38]

6.33 Consistent with prior recommendation, for this BCA, we assume a reliability ratio of 1.2 for commute/ personal, business, and airport access/egress. For trucks, we use a reliability ratio of 1.5 per FHWA[39] and also supported by studies focusing on the trucking industry, which

[37] SHRP 2 Reliability Project L35B. Value of Travel Time Reliability in Transportation Decision Making: Proof of Concept Maryland, 2014.

[38] Brent, D.A. and Gross, A. (2018). "Dynamic Road Pricing and the Value of Time and Reliability," Journal of Regional Science, 58(2), pp. 330–349.

[39] FHWA. Does Travel Time Reliability Matter? FHWA-HOP-19-062, 2019, p. 14

estimate the value of reliability at 1.49 times the value of time for shippers and freight carriers.[40,41]

Travel Time Savings and Travel Time Reliability Savings

6.34 Travel time savings are calculated by determining the difference in travel times between the Greenway and the alternate route for each OD pair individually. We used available 2024 and 2025 travel time data to estimate travel time conditions for each route. Specifically, we calculated representative travel times from route-level average travel time data obtained from TomTom for the period between January 1, 2024 and June 30, 2025. In addition to TomTom-based travel time savings, we also include incremental travel time differences between routes derived from the network model by comparing the Greenway and alternate routes for the 2024 base year and 2026 scenario to reflect the estimated differences in travel times associated with changes in 2026 traffic levels due to growth and toll rate changes.

6.35 We calculated Buffer Times for each of the 10 ODs using TomTom data as the difference between the average travel time and the planning travel time, which we assume to be the 95th percentile travel times.

6.36 Table 6.8 summarizes the VTTS, VOR, travel time savings and reliability savings and their conversions into monetary benefits for the different user market segments in the peak and off-peak periods, weighted for the 10 ODs on the Greenway relative to their alternative routes in 2024$.

[40] Shams, K., Asgari, H., and Jin, X., "Valuation of Travel Time Reliability in Freight Transportation: A Review and Meta-Analysis of Stated Preference Studies," Transportation Research Part A: Policy and Practice, 102, pp. 228–243, 2017.

[41] Shams, K., Jin, X., Fitzgerald, R., Asgari, H., and Hossan, M.S., "Value of Reliability for Road Freight Transportation: Evidence from a Stated Preference Survey in Florida," Transportation Research Record 2610, pp. 35–43, 2017.

Table 6.8: Time and Reliability Savings | 10 ODs on Greenway vs. Alternative Routes (2024$)

	Share of Trips	VTTS (2024 $ / hr /trip)	VOR (2024 $ / hr /trip)	Time Savings (min)	Reliability Savings (min)	Time Savings (2024 $)	Reliability Savings (2024 $)
Peak							
Commute/Personal	22.4%	$47.79	$57.35	4.19	7.87	$3.33	$7.52
Business	7.7%	$48.98	$58.77	4.19	7.87	$3.42	$7.71
Airport Access/Egress	1.3%	$64.52	$77.43	4.19	7.87	$4.50	$10.15
Trucks	0.5%	$71.61	$107.41	4.10	7.35	$4.89	$13.16
Weighted Average:	**31.9%**	**$49.17**	**$59.38**	**4.19**	**7.86**	**$3.44**	**$7.79**
Off-Peak							
Commute/Personal	46.6%	$47.79	$57.35	2.73	2.55	$2.17	$2.44
Business	16.0%	$48.98	$58.77	2.73	2.55	$2.23	$2.50
Airport Access/Egress	2.7%	$64.52	$77.43	2.73	2.55	$2.93	$3.29
Trucks	2.8%	$71.61	$107.41	2.67	2.47	$3.18	$4.43
Weighted Average:	**68.1%**	**$49.71**	**$60.54**	**2.72**	**2.55**	**$2.27**	**$2.61**
Total Weighted Average:	**100.0%**	**$49.54**	**$60.17**	**3.19**	**4.26**	**$2.65**	**$4.27**

Source: Steer

Vehicle Operating Cost Savings

6.37 This section discusses the estimation of vehicle operating cost savings that the Greenway provides in comparison to alternative routes. The improvements and efficiencies from smoother flowing traffic conditions that toll roads like the Greenway provide to users can generate savings in vehicle operating costs, which can be estimated and allocated to user benefits. Given the differences in these savings for the main vehicle types of the Greenway, they are estimated separately for autos and trucks.

Variable Vehicle Operating Costs: Fuel

6.38 The cost of fuel is an important source of variable operating cost savings to vehicle operators. It is driven by the price of fuel and vehicle-specific fuel consumption rates. While the price of fuel may not differ across the Greenway and alternative routes, fuel consumption rates are closely tied to vehicle operating speeds, which vary between the Greenway and alternative routes. Average travel time data obtained from TomTom indicate that vehicles are able to travel faster on the Greenway, particularly during peak hours. Therefore, accounting for the shift in traffic during different times of the day, fuel cost savings can be estimated for Greenway users, separately for autos and trucks.

6.39 Table 6.9 shows the prevailing average retail fuel price for regular gasoline and diesel in the Lower Atlantic region at the time of our analysis (also consistent with period of the vehicle travel time data from TomTom).

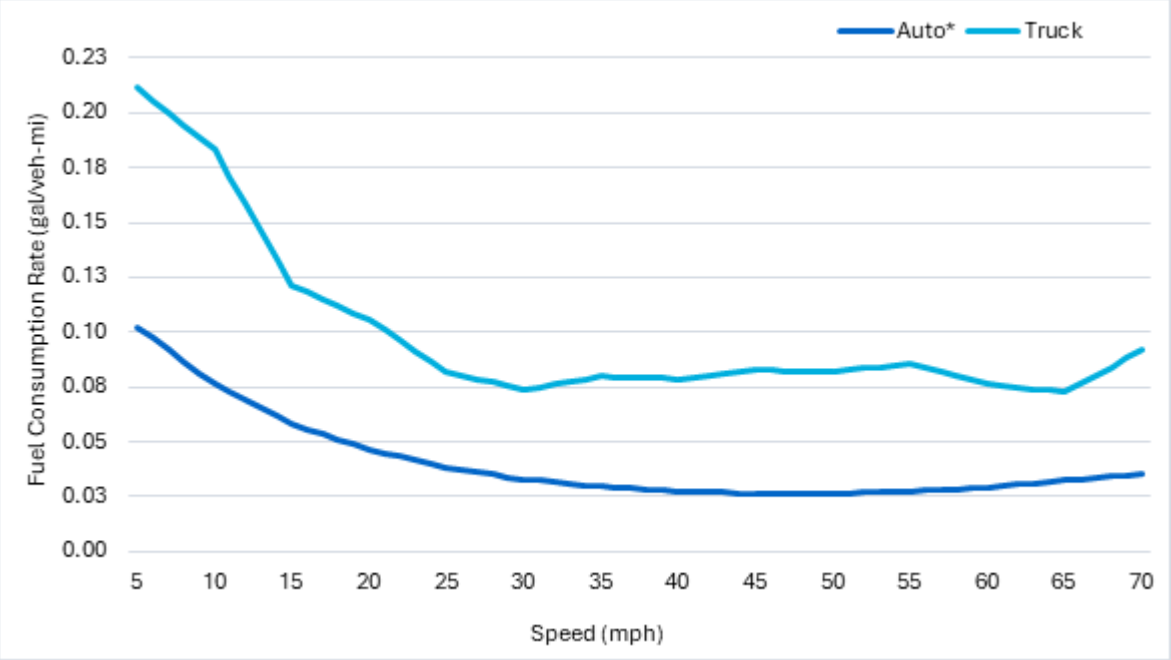
Table 6.9: Average Fuel Price (2024$) as of August 14, 2025

Year	Auto	Truck
2024	$3.14	$3.74
2025*	$2.85	$3.49
2024-2025 **	$3.05	$3.66

* 2025 prices are from January 2025 to June 2025
** 2024-2025 prices are from January 2024 to June 2025
Source: U.S. Energy Information Administration, Auto prices from Weekly Lower Atlantic (PADD 1C) Regular All Formulations Retail Gasoline Prices and truck from Weekly Lower Atlantic (PADD 1C) No 2 Diesel Retail Prices, Retrieved August 14, 2025. U.S. Energy Information Administration, Short-term Energy Outlook Data Browser, Retrieved August 14, 2025.

6.40 Figure 6.4 below shows how fuel consumption varies by vehicle speed and by vehicle class, based on information from the California Air Resources Board's cost-benefit model for mobile-source emissions.

Figure 6.4: Fuel Consumption Rates (gal/veh-mi) by Vehicle Class and Speed



Source: California Air Resources Board, EMFAC 2014, 2016 & 2036 average.
* Includes motorcycles & motorhomes

Variable Vehicle Operating Costs: Other

6.41 We also consider other vehicle operation cost savings that are distance-based. For both autos and trucks, we use standard industry sources to estimate these costs, broadly categorized as maintenance, repair, and tires. Following the USDOT's BCA guidance, we use national-level marginal vehicle operating costs data from the American Automobile

Association ("AAA"). For trucks, we use data from the American Transportation Research Institute.

Table 6.10: Per-Mile Variable Vehicle Operating Costs in 2024 (Maintenance, Repair, and Tires)

Vehicle Class	Cost, 2024$
Auto	$0.10
Truck	$0.25

Source: American Automobile Association, Newsroom, Your Driving Costs Fact Sheet, as of March 14, 2025; Analysis of the Operational Costs of Trucking: July 2025 Update.

User Benefits: Vehicle Operating Cost Savings

6.42 Table 6.11 and Table 6.12 summarize the vehicle operating cost savings for users of the Greenway relative to alternative routes on a per mile and per trip basis, respectively. The calculations account for the distances and average travel speeds of each route. The results indicate that the operating costs are very similar between the Greenway and alternate routes, with both the per-mile costs and the average distances being similar. For autos, the Greenway provides an operating cost savings between $0.17 per trip in the peak and $0.09 per trip in the off-peak weighted across the 10 ODs. For trucks, the operating cost savings per trip range from $0.00 in the peak and $0.16 in the off-peak.

Table 6.11: Vehicle Operating Costs Per Mile

	Speed* (mph)	Fuel Consumption (gal/mi)		Fuel Cost per Mile (2024$)		Other Variable Cost (2024$)		Total Cost per Mile (2024$)	
		Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
Peak									
Greenway 1-10 ODs	43	0.03	0.08	$0.08	$0.30	$0.10	$0.25	$0.21	$0.62
Alternative 1-10 ODs	38	0.03	0.08	$0.09	$0.29	$0.10	$0.25	$0.22	$0.62
Off-Peak									
Greenway 1-10 ODs	47	0.03	0.08	$0.08	$0.30	$0.10	$0.25	$0.21	$0.63
Alternative 1-10 ODs	44	0.03	0.08	$0.08	$0.30	$0.10	$0.25	$0.21	$0.62

*Speeds rounded to the nearest whole number
1-10 ODs are a weighted average of the ODs
Sources: TomTom International BV 2021 (average speeds), EIA (fuel costs as of Aug. 14, 2025), California Air Resources Board, EMFAC 2014, 2016 and 2036 avg. (fuel consumption per mile), AAA and ATRI 2019 (vehicle operating and ownership costs).

Table 6.12: Vehicle Operating Costs Savings Per Trip

	Distance (mi)	Per Trip Cost (2024$)		Greenway Savings Compared to Alternatives (2024$)	
		Auto	Truck	Auto	Truck
Peak					
Greenway 1-10 ODs	23.02	$4.86	$14.41		
Alternative 1-10 ODs	23.39	$5.03	$14.41	$0.17	$0.00
Off-Peak					
Greenway 1-10 ODs	23.02	$4.86	$14.42		
Alternative 1-10 ODs	23.39	$4.95	$14.58	$0.09	$0.16

Source: Steer

Accident Cost Savings

6.43 The Greenway may provide safety benefits to users by reducing the likelihood of fatalities, injuries, and property damage from automobile crashes due to lower rates of accidents or levels of each accident's severity. The value of safety benefits provided to Greenway users can be measured by comparing vehicle accident rates on the Greenway with those rates on the alternative routes. As with other aspects of the benefit analysis, accident data is compared by the Greenway route and the non-Greenway route for each representative origin destination pair. In prior rate cases, the Greenway accident rates were compared against county-wide accident rates. By examining specific routes, non-Greenway access and egress portions of the trip are included in the accident rates for Greenway trips as well as the alternate route. The monetized value of these benefits to Greenway users can then be estimated based on crash-cost valuations provided by USDOT. This route-specific accident analysis approach was discussed and agreed upon during the Working Group meetings.

6.44 We obtained accident data maintained by VDOT, along with VDOT's AADT data, and analyzed the historical accidents that occurred on the Greenway and alternate routes. Table 6.13 and Table 6.14 summarize the number of accident injuries by level of severity for the Greenway and alternative route, respectively, between 2018 and 2024. The tables also provide the annual vehicle miles traveled ("VMT") estimates that are used to calculate the accident rates by the category of severity in Table 6.15. The tables show that the Greenway's accident rates – categorized by severity (Fatality, Incapacitating Injury, Non-Incapacitating Injury, Possible Injury and Property Damage Only) per 100 million VMT – are lower, in some cases substantially lower, than the rates of accidents on alternative routes with the exception of the Possible Injury category where they essentially have the same accident rate. The approach for calculating and comparing accident rates by severity per 100 million VMT for the Greenway and alternate routes was discussed and agreed upon with the working group prior to analysis.

Table 6.13: Greenway Crash Summary, 2018-2024

Greenway Route*	Crashes (2018 to 2024)					VMT
	Fatality	Incapacitating	Non - Incapacitating	Possible Injury	Not Injured	
Purcellville - Herndon	1	90	285	247	1,496	2,428
Woodburn - Herndon	2	61	155	233	730	1,201
Grenata Preserve - Herndon	2	56	109	227	567	1,136
Riverside High School -Tysons Corner	11	62	397	35	1,901	2,979
Ashburn Farm -Herndon	2	57	109	227	521	820
Ashburn Village -Herndon	1	54	177	252	664	772
Martins Chase -Herndon	0	63	186	250	733	753
Middleburg -Herndon	2	68	253	254	1,105	1,153
Purcellville - Shoppes at Ryan Park	1	38	234	35	1,132	2,087
Purcellville - Stony Hill	1	41	228	26	1,181	2,323
Purcellville -Leesburg Executive Airport	0	37	198	20	960	1,465
Sum	**23**	**590**	**2,133**	**1,786**	**10,030**	**15,652**

* Crash counts and VMT figures represent travel in both directions
Source: Steer analysis of crash data from Virginia Department of Transportation, retrieved July 2025; AADT retrieved October 2025 for VMT analysis

Table 6.14: Alternative Route Crash Summary, 2018-2024

Alternate Route*	Crashes (2018 to 2024)					VMT
	Fatality	Incapacitating	Non - Incapacitating	Possible Injury	Not injured	
Purcellville - Herndon	5	130	732	316	3,210	3,608
Woodburn - Herndon	6	109	634	306	2,641	2,156
Grenata Preserve - Herndon	4	89	466	272	2,014	1,869
Riverside High School -Tysons Corner	19	153	1,316	161	4,994	2,546
Ashburn Farm -Herndon	6	58	337	242	1,310	700
Ashburn Village -Herndon	6	66	384	253	1,424	569
Martins Chase -Herndon	5	55	362	251	1,430	878
Middleburg -Herndon	6	52	335	247	1,330	1,170
Purcellville - Shoppes at Ryan Park	2	83	569	109	2,288	2,608
Purcellville - Stony Hill	1	49	346	41	1,360	1,378
Sum	**60**	**844**	**5,481**	**2,198**	**22,001**	**17,482**

* Crash counts and VMT figures represent travel in both directions
Source: Steer analysis of crash data from Virginia Department of Transportation, retrieved July 2025; AADT retrieved October 2025 for VMT analysis

Table 6.15: Weighted Crash Rate per 100 million VMT for the Greenway and Alternative Route, 2018-2024

Crash Category	Greenway Route	Alternative Route
Fatality	0.1	0.4
Incapacitating	4.9	5.2
Non-Incapacitating	15.7	32.1
Possible Injury	17.2	17.1
Not injured	71.5	128.8

Source: Steer analysis of crash data from Virginia Department of Transportation, retrieved July 2025; AADT retrieved October 2025 for VMT analysis

6.45 Using the accident rates shown above, along with average costs per accident type to convert into monetary terms, we determined the accident cost savings, which contribute to the total benefits of the Greenway.

6.46 We derived the average costs associated with each of accident category following USDOT's guidance handbook on "Benefit Cost Analysis Guidance for Discretionary Grant Programs, May 2025." Table 6.16 presents the application of the average value of each accident category to the accident rates per 100 million VMT for the Greenway and alternative routes, and trip lengths, to calculate the costs for the Greenway and alternatives.

6.47 The table shows that due to the lower rate of crashes for the Greenway, the costs associated with crashes are lower for the Greenway. This results in the average cost saving per trip for the Greenway compared with the alternative of $1.67.

Table 6.16: Monetary Values[42] of Crashes (in 2024$)

Crash Category	Greenway Route	Alternative Route
Fatality	$ 1,346,435	$ 5,289,657
Incapacitating	$ 6,363,429	$ 6,687,264
Non-Incapacitating	$ 3,987,736	$ 8,148,249
Possible Injury	$ 2,085,880	$ 2,075,033
Not injured	$ 390,028	$ 702,738
Greenway savings per trip	**$1.67**	

Source: Steer

[42] Benefit Cost Analysis Guidance for Discretionary Grant Programs, May 2025 | Table A-1. Value of Reduced Fatalities, Injuries, and Crashes (2023$)
https://www.transportation.gov/sites/dot.gov/files/2025-05/Benefit%20Cost%20Analysis%20Guidance%202025%20Update%20II%20%28Final%29.pdf

Benefit Cost Ratio

6.48 Using the various benefit values described above and the existing and proposed toll rates, we determined the BCR for the various travel segments compared to their alternatives. For the current toll rates, the top of Table 6.17 summarizes the benefits, weighted for the 10 ODs, relative to their alternatives by user class, while the bottom of the table shows the values that are used in the BCR. The BCR is determined by dividing the Total Benefit by the Toll Cost.

6.49 In order to facilitate the comparison with the toll rates that are in 2026$, we have inflated the benefits from 2024$ (as presented in prior sections) to 2026$ using an assumed inflation of 5.7% based on the CPI forecast published by the Congressional Budget Office.

6.50 Overall, the table shows the BCR of 1.61 with market segment and time period values ranging from 0.72 to 3.02.

Table 6.17: Benefits and BCR of the 10 ODs on DG vs their Alternative Routes – No Toll Increase (2026$)

Market Segment	Time Savings	Reliability Savings	Vehicle Operations Savings	Crash Cost Savings	Total
Peak					
Commute/Personal	$3.52	$7.95	$0.18	$1.77	$13.41
Business	$3.61	$8.14	$0.18	$1.77	$13.70
Airport Access/Egress	$4.76	$10.73	$0.18	$1.77	$17.43
Trucks	$5.17	$13.91	$0.00	$1.77	$20.84
Off-Peak					
Commute/Personal	$2.29	$2.58	$0.10	$1.77	$6.73
Business	$2.35	$2.64	$0.10	$1.77	$6.85
Airport Access/Egress	$3.10	$3.48	$0.10	$1.77	$8.44
Trucks	$3.36	$4.68	$0.17	$1.77	$9.98

Market Segment	Share of Trips	Total Benefit	Toll Cost	Net Benefit	BCR
Peak					
Commute/Personal	22.4%	$13.41	$5.78	$7.64	2.32
Business	7.7%	$13.70	$5.78	$7.92	2.37
Airport Access/Egress	1.3%	$17.43	$5.78	$11.65	3.02
Trucks	0.5%	$20.84	$14.85	$5.99	1.40
Weighted Average:	31.9%	$13.77	$5.93	$7.84	2.32
Off-Peak					
Commute/Personal	46.6%	$6.73	$5.23	$1.51	1.29
Business	16.0%	$6.85	$5.23	$1.63	1.31
Airport Access/Egress	2.7%	$8.44	$5.23	$3.21	1.62
Trucks	2.8%	$9.98	$13.77	-$3.79	0.72
Weighted Average:	68.1%	$6.96	$5.58	$1.39	1.25
All Day					
Commute/Personal	69.0%	$8.90	$5.40	$3.50	1.65
Business	23.6%	$9.08	$5.40	$3.67	1.68
Airport Access/Egress	4.0%	$11.35	$5.40	$5.95	2.10
Trucks	3.4%	$11.74	$13.95	-$2.20	0.84
Weighted Average:	100.0%	$9.14	$5.69	$3.44	1.61

Source: Steer

6.51 Table 6.18 presents the benefits and corresponding BCRs for Toll Case A, while Table 6.19 presents the benefits and corresponding BCRs for Toll Case B. These tables follow the same structure as the above table but reflect the impact of higher toll charges on overall BCR outcomes.

Table 6.18: Benefits and BCR of the 10 ODs on DG vs their Alternative Routes – Toll Case A (2026$)

Market Segment	Time Savings	Reliability Savings	Vehicle Operations Savings	Crash Cost Savings	Total
Peak					
Commute/Personal	$3.57	$7.95	$0.18	$1.77	$13.46
Business	$3.66	$8.14	$0.18	$1.77	$13.74
Airport Access/Egress	$4.82	$10.73	$0.18	$1.77	$17.49
Trucks	$5.24	$13.91	$0.00	$1.77	$20.92
Off-Peak					
Commute/Personal	$2.33	$2.58	$0.10	$1.77	$6.77
Business	$2.39	$2.64	$0.10	$1.77	$6.90
Airport Access/Egress	$3.15	$3.48	$0.10	$1.77	$8.49
Trucks	$3.42	$4.68	$0.17	$1.77	$10.04

Market Segment	Share of Trips	Total Benefit	Toll Cost	Net Benefit	BCR
Peak					
Commute/Personal	22.4%	$13.46	$6.73	$6.73	2.00
Business	7.7%	$13.74	$6.73	$7.02	2.04
Airport Access/Egress	1.3%	$17.49	$6.73	$10.76	2.60
Trucks	0.5%	$20.92	$17.23	$3.69	1.21
Weighted Average:	31.9%	$13.82	$6.91	$6.91	2.00
Off-Peak					
Commute/Personal	46.6%	$6.77	$5.58	$1.20	1.21
Business	16.0%	$6.90	$5.58	$1.32	1.24
Airport Access/Egress	2.7%	$8.49	$5.58	$2.92	1.52
Trucks	2.8%	$10.04	$14.70	-$4.66	0.68
Weighted Average:	68.1%	$7.01	$5.95	$1.05	1.18
All Day					
Commute/Personal	69.0%	$8.94	$5.95	$2.99	1.50
Business	23.6%	$9.12	$5.95	$3.17	1.53
Airport Access/Egress	4.0%	$11.41	$5.95	$5.46	1.92
Trucks	3.4%	$11.81	$15.11	-$3.30	0.78
Weighted Average:	100.0%	$9.18	$6.26	$2.92	1.47

Source: Steer

Table 6.19: Benefits and BCR of the 10 ODs on DG vs their Alternative Routes – Toll Case B (2026$)

Market Segment	Time Savings	Reliability Savings	Vehicle Operations Savings	Crash Cost Savings	Total
Peak					
Commute/Personal	$3.57	$7.95	$0.18	$1.77	$13.46
Business	$3.66	$8.14	$0.18	$1.77	$13.75
Airport Access/Egress	$4.82	$10.73	$0.18	$1.77	$17.49
Trucks	$5.33	$13.91	$0.00	$1.77	$21.01
Off-Peak					
Commute/Personal	$2.37	$2.58	$0.10	$1.77	$6.81
Business	$2.43	$2.64	$0.10	$1.77	$6.93
Airport Access/Egress	$3.20	$3.48	$0.10	$1.77	$8.54
Trucks	$3.48	$4.68	$0.17	$1.77	$10.09

Market Segment	Share of Trips	Total Benefit	Toll Cost	Net Benefit	BCR
Peak					
Commute/Personal	22.4%	$13.46	$6.48	$6.99	2.08
Business	7.7%	$13.75	$6.48	$7.27	2.12
Airport Access/Egress	1.3%	$17.49	$6.48	$11.02	2.70
Trucks	0.5%	$21.01	$16.59	$4.42	1.27
Weighted Average:	31.9%	$13.82	$6.65	$7.18	2.08
Off-Peak					
Commute/Personal	46.6%	$6.81	$5.63	$1.19	1.21
Business	16.0%	$6.93	$5.63	$1.31	1.23
Airport Access/Egress	2.7%	$8.54	$5.63	$2.92	1.52
Trucks	2.8%	$10.09	$14.83	-$4.74	0.68
Weighted Average:	68.1%	$7.04	$6.01	$1.04	1.17
All Day					
Commute/Personal	69.0%	$8.97	$5.90	$3.07	1.52
Business	23.6%	$9.15	$5.90	$3.24	1.55
Airport Access/Egress	4.0%	$11.45	$5.90	$5.55	1.94
Trucks	3.4%	$11.87	$15.12	-$3.25	0.79
Weighted Average:	100.0%	$9.21	$6.21	$3.00	1.48

Source: Steer

A Appendix A

Alternate Material Discouragement Calculation

A.1 While the information presented in the body of the Report performs the material discouragement calculation relative to the traffic of the scenario using the current toll rates in the same forecast year, TRIP II maintains that the base for comparison should be the traffic level from the time of the prior toll rate increase. In this appendix, we present an alternate set of toll rates, Toll Case C,[43] and perform the material discouragement using this alternate approach. We also present the user benefit analysis for Toll Case C.

Toll Case C: Toll Rates

A.2 Toll Case C represents the toll rates that we analyzed as part of this alternate material discouragement analysis. Toll Case C rates were set as $1.45 increase for peak and $0.85 increase for off-peak. The 2-axle transponder rates are presented in Table A.1, along with the current toll rates for comparison.

Table A.1: 2026 Toll Case C 2-Axle Transponder Toll Rates (Nominal Dollars)

Toll Plaza	No Toll Increase		Toll Case C	
	Peak	Off-Peak	Peak	Off-Peak
Mainline	$5.80	$5.25	$7.25	$6.10
Rt 28	$5.80	$5.25	$7.25	$6.10
Rt 606 - Old Ox Rd	$5.80	$5.25	$7.25	$6.10
Rt 607 - Loudoun Co Pkwy	$5.80	$5.25	$7.25	$6.10
Rt 772- Ryan Rd	$5.10	$4.55	$6.55	$5.40
Rt 901 - Claiborne Pkwy	$5.10	$4.55	$6.55	$5.40
Rt 659 - Belmont Ridge Rd	$5.10	$4.55	$6.55	$5.40
Shreve Mill Rd	$4.10	$4.10	$5.55	$4.95

Source: Steer

[43] Toll Case C is referred to as the Alternative Proposed Rates in the Application.

Toll Case C: Traffic Forecasts

A.3 The forecasted average daily traffic levels at each toll plaza resulting from Toll Case C are presented in Table A.2, along with the 2026 No Toll Increase forecasts for each plaza. The table shows a forecasted 2-way total average daily traffic of 41,052.

Table A.2: Estimated 2026 Average Daily Transactions by Toll Plaza

Toll Plaza	No Toll Increase		Toll Case C	
	EB	WB	EB	WB
Mainline Plaza	18,061	18,139	17,180	17,195
Old Ox Rd (Rte 606)	1,297	1,639	1,206	1,526
Loudoun County Pkwy (Rte 607)	366	545	358	544
Ryan Rd (Rte 772)	715	734	655	657
Claiborne Pkwy (Rte 901)	403	422	358	362
Belmont Ridge Rd (Rte 659)	387	488	347	458
Shreve Mill Rd	119	114	104	102
Total	21,348	22,081	**20,208**	**20,844**
2-Way Total	**43,430**		**41,052**	

Source: Steer

Toll Case C: Material Discouragement

A.4 Table A.3 presents the comparison of the daily traffic levels for Toll Case C relative to the 2026 traffic level forecasted for no toll increase. As seen in the table, Toll Case C results in a daily traffic decrease of 5.5% which is higher than the 3% material discouragement condition.

Table A.3: Traffic Change Relative to 2026 No Toll Increase from Toll Case C Proposed Toll Rates

Toll Type	2026 No Toll Increase Traffic	Toll Case C Traffic	% Change
Peak	10,715	10,214	-4.7%
Off-Peak	32,715	30,838	-5.7%
Total	**43,430**	**41,052**	**-5.5%**

Source: Steer

A.5 When the resulting traffic is applied using the Company's 2023 methodology which compares the toll increase to the year of the last toll increase, 2022, the material discouragement test is satisfied. Table A.4 presents this comparison, showing that the Toll Case C traffic forecasts are 22.1% higher than the actual 2022 traffic levels, and thus satisfy the material discouragement condition.

Table A.4: Traffic Change Relative to 2022 Traffic from Toll Case C Proposed Toll Rates

Toll Type	2022 Traffic	Toll Case C Traffic	% Change
Peak	7,049	10,214	44.9%
Off-Peak	26,569	30,838	16.1%
Total	**33,618**	**41,052**	**22.1%**

Source: Steer

Toll Case C: Benefit Cost Ratio

A.6 We also assessed the user benefits associated with Toll Case C. Following the same approach described in Chapter 6, we calculated the benefits and BCR for Toll Case C and present these results in Table A.5. The table shows that Toll Case C provides an overall BCR of 1.39, with the only period-vehicle class with a BCR below 1.0 being trucks during the off-peak.

Table A.5: Benefits and BCR of the 10 ODs on DG vs their Alternative Routes – Toll Case C (2026$)

Market Segment	Time Savings	Reliability Savings	Vehicle Operations Savings	Crash Cost Savings	Total
Peak					
Commute/Personal	$3.69	$7.95	$0.18	$1.77	$13.58
Business	$3.78	$8.14	$0.18	$1.77	$13.87
Airport Access/Egress	$4.98	$10.73	$0.18	$1.77	$17.65
Trucks	$5.43	$13.91	$0.00	$1.77	$21.10
Off-Peak					
Commute/Personal	$2.60	$2.58	$0.10	$1.77	$7.04
Business	$2.66	$2.64	$0.10	$1.77	$7.17
Airport Access/Egress	$3.51	$3.48	$0.10	$1.77	$8.85
Trucks	$3.82	$4.68	$0.17	$1.77	$10.44

Market Segment	Share of Trips	Total Benefit	Toll Cost	Net Benefit	BCR
Peak					
Commute/Personal	22.4%	$13.58	$7.23	$6.35	1.88
Business	7.7%	$13.87	$7.23	$6.64	1.92
Airport Access/Egress	1.3%	$17.65	$7.23	$10.43	2.44
Trucks	0.5%	$21.10	$17.73	$3.37	1.19
Weighted Average:	31.9%	$13.94	$7.41	$6.54	1.88
Off-Peak					
Commute/Personal	46.6%	$7.04	$6.08	$0.96	1.16
Business	16.0%	$7.17	$6.08	$1.09	1.18
Airport Access/Egress	2.7%	$8.85	$6.08	$2.77	1.46
Trucks	2.8%	$10.44	$15.20	-$4.76	0.69
Weighted Average:	68.1%	$7.28	$6.45	$0.83	1.13
All Day					
Commute/Personal	69.0%	$9.16	$6.45	$2.71	1.42
Business	23.6%	$9.34	$6.45	$2.89	1.45
Airport Access/Egress	4.0%	$11.70	$6.45	$5.26	1.82
Trucks	3.4%	$12.17	$15.61	-$3.44	0.78
Weighted Average:	100.0%	$9.41	$6.76	$2.65	1.39

Source: Steer

B Appendix B

OD Route Figures

Figure B.1: Greenway and Alternate Routes between Purcellville and Herndon

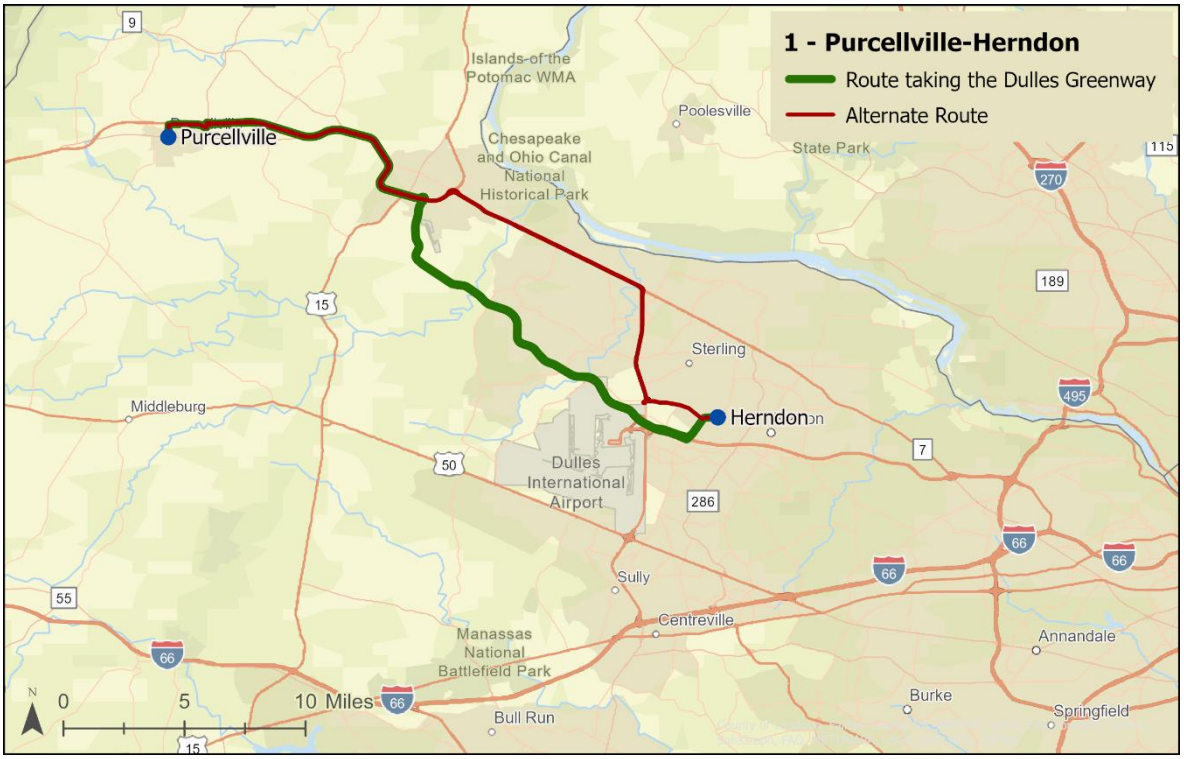


Figure B.2: Greenway and Alternate Routes between Woodburn and Herndon

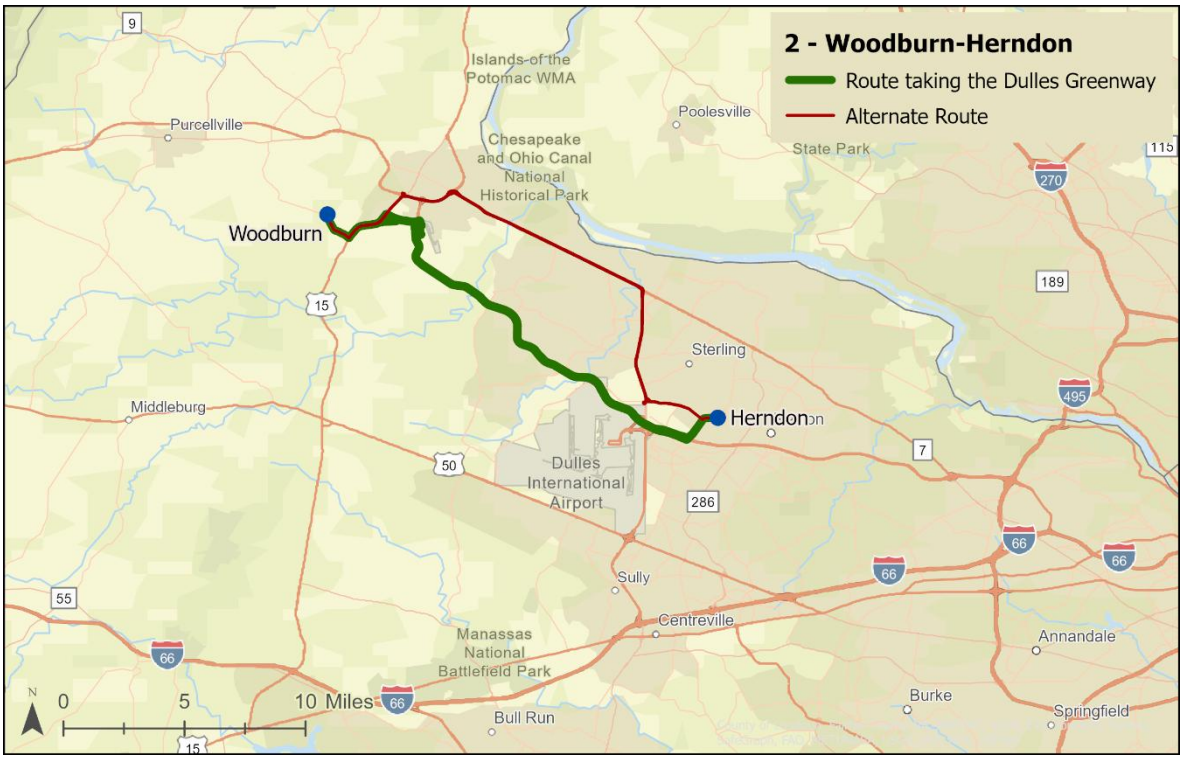


Figure B.3: Greenway and Alternate Routes between Grenata Preserve and Herndon

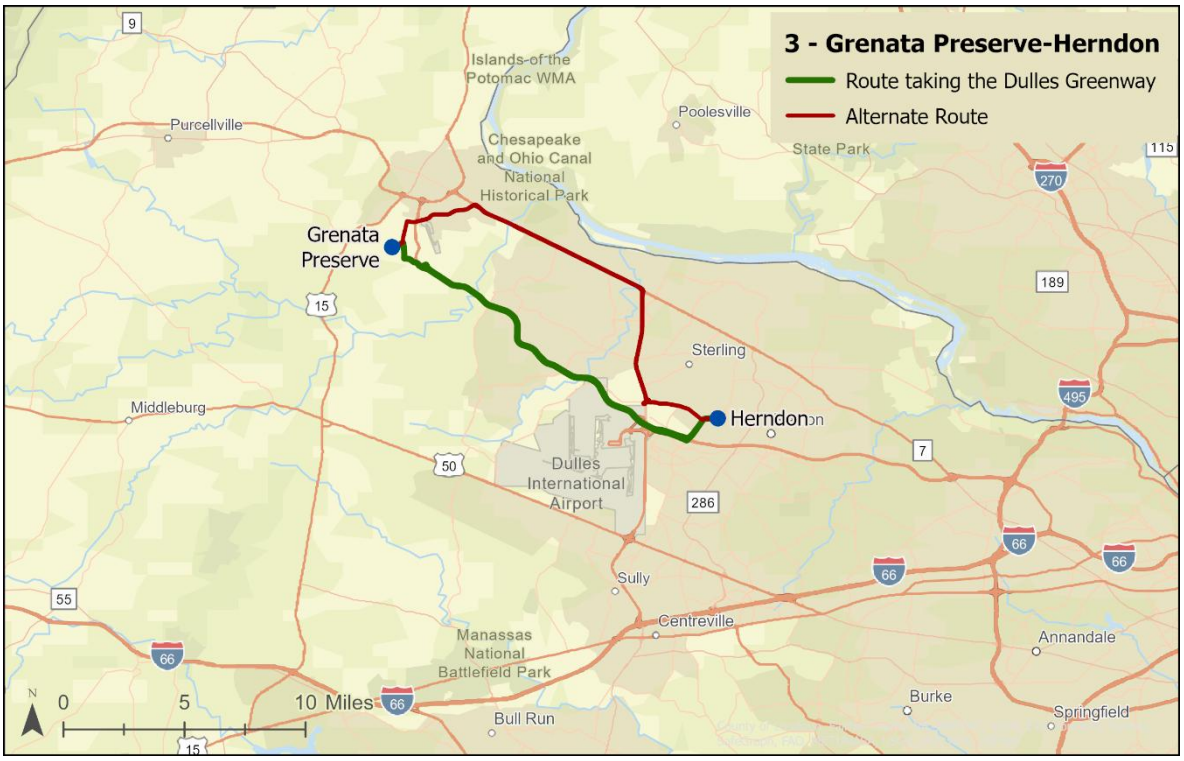


Figure B.4: Greenway and Alternate Routes between Riverside High School and Tysons Corner

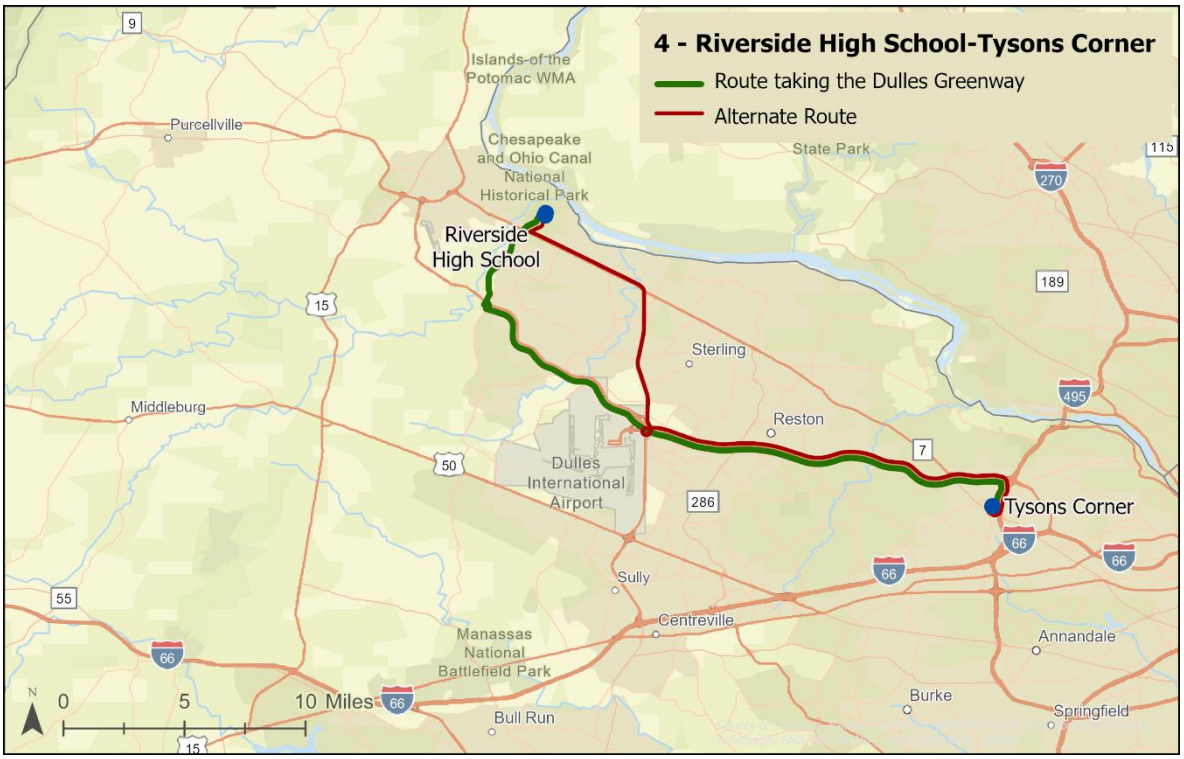


Figure B.5: Greenway and Alternate Routes between Ashburn Farm and Herndon

Figure B.6: Greenway and Alternate Routes between Ashburn Village and Herndon

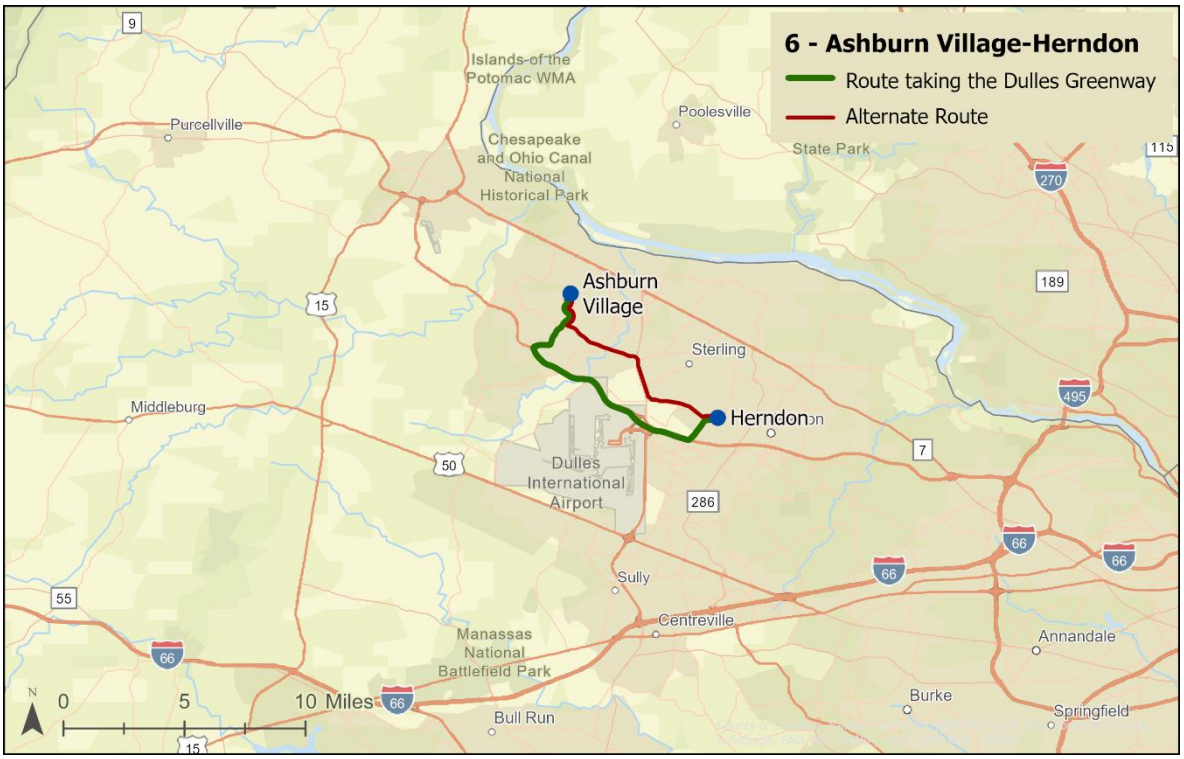


Figure B.7: Greenway and Alternate Routes between Martins Chase and Herndon

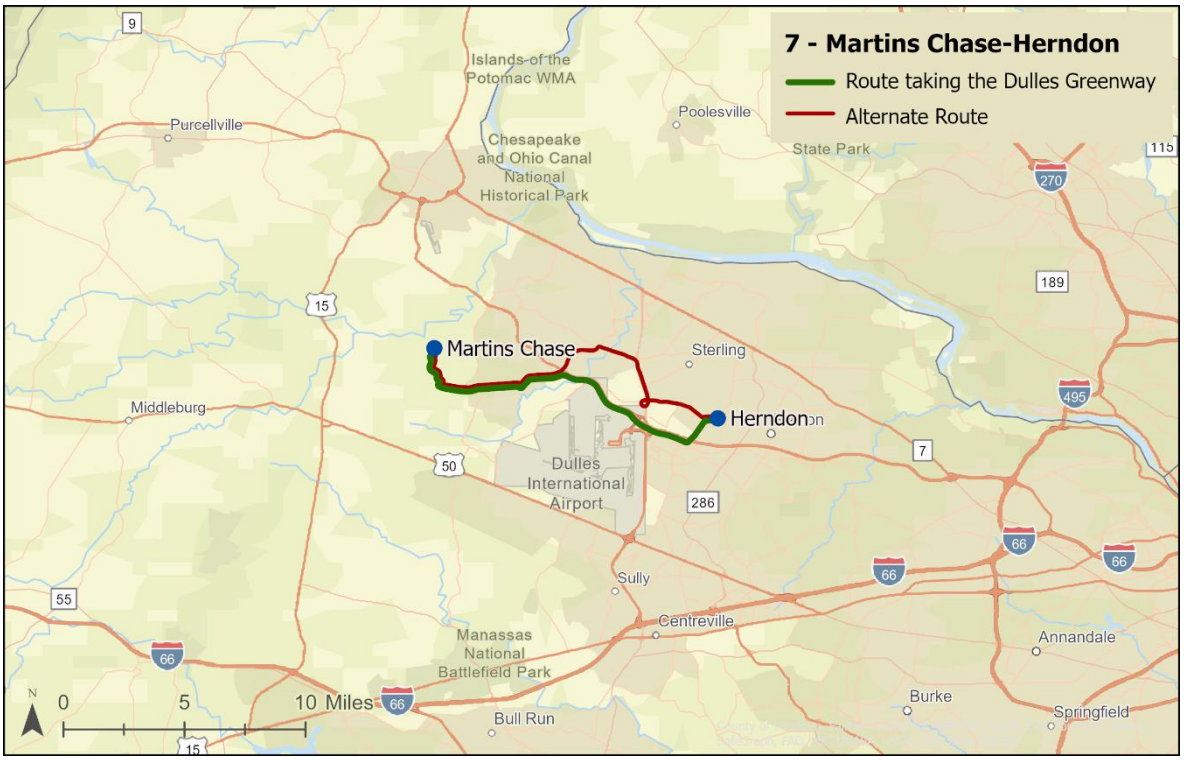


Figure B.8: Greenway and Alternate Routes between Middleburg and Herndon

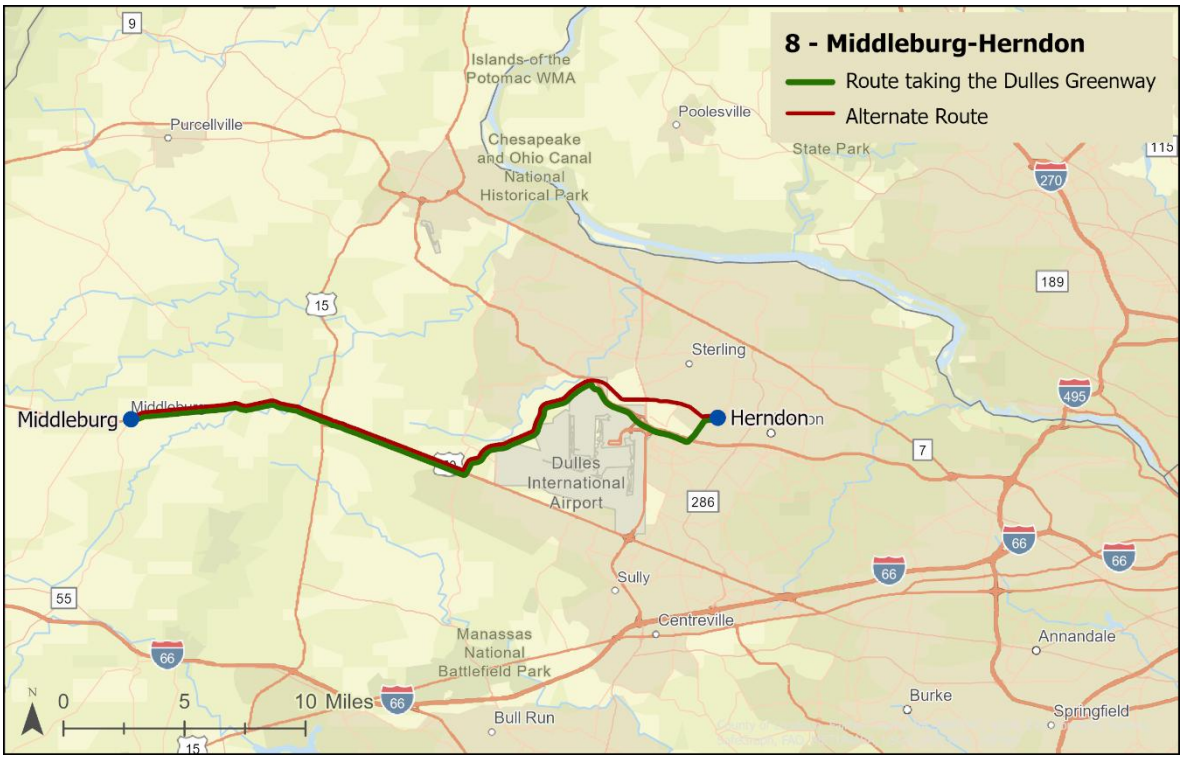
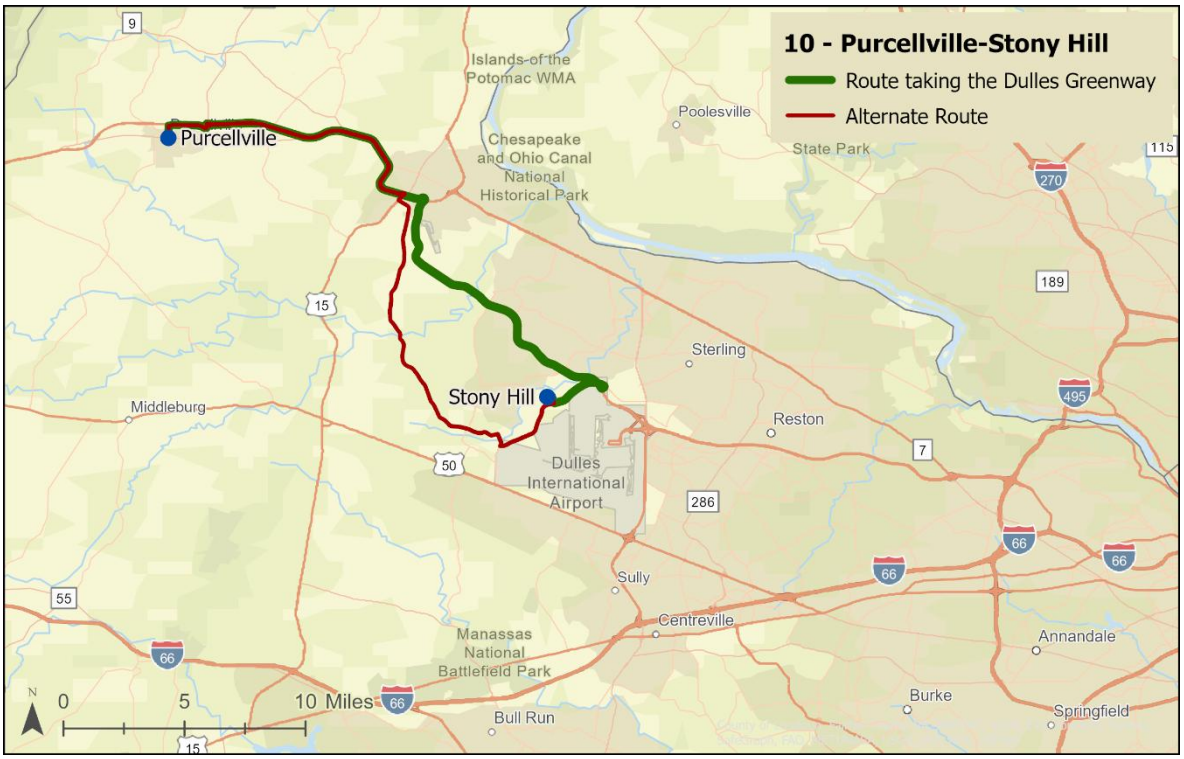


Figure B.9: Greenway and Alternate Routes between Purcellville and the Shoppes at Ryan Park

Figure B.10: Greenway and Alternate Routes between Purcellville and Stony Hill



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